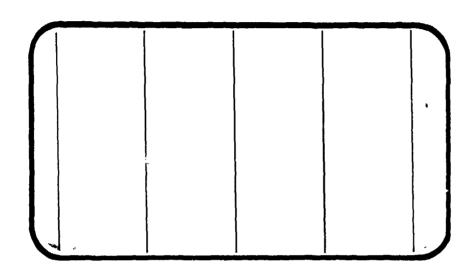


NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

(NASA-CR-144594) TRANSITION HEATING RATES
OBTAINED ON A MATTED AND ISOLATED 0.006
SCALE MODEL (41-OT) SPACE SHUTTLE ORBITER
AND EXTERNAL TANK IN THE NASA/LARC VARIABLE
DENSITY HYPERSONIC TUNNEL (IH17) (Chrysler G3/18

N76-31270 HC#16.25

Unclas 02478



SPACE SHUTTLE

AEROTHERMODYNAMIC DATA REPORT

JOHNSON SPACE CENTER

HOUSTON, TEXAS

DATA MANagement services

SPACE DIVISION CHRYSLER CORPORATION

DMS-DR-2105

NASA CR-144,594

TRANSITION HEATING RATES OBTAINED ON A MATED AND ISOLATED 0.006 SCALE MODEL (41-OT) SPACE SHUTTLE ORBITER AND EXTERNAL TANK IN THE NASA/ LARC VARIABLE DENSITY HYPERSONIC TUNNEL (IH17)

bу

J. Cummings Shuttle Aero Sciences Rockwell International Space Division

Prepared under NASA Contract Number NAS9-13247

bу

Data Management Services Chrysler Corporation Space Division New Orleans, La. 70189

for

Engineering Analysis Division

Johnson Space Center National Aeronautics and Space Administration Houston, Texas

WIND TUNNEL TEST SPECIFICS:

Test Number:

LaRC VDHT-646, 647

NASA Series Number:

IH17

Model Number:

41-OT

Test Dates:

11 thru 16 October 1973

Occupancy Hours:

32

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Chrysler Corporation Space Division assumes no responsibility for the data presented other than display characteristics.

TRANSITION HEATING RATES OBTAINED ON A MATED AND ISOLATED 0.006 SCALE MODEL (41-OT) SPACE SHUTTLE ORBITER AND EXTERNAL TANK IN THE NASA/LaRC VARIABLE DENSITY HYPERSONIC TUNNEL (IH17)

ABSTRACT

This report presents model information and data obtained from wind tunnel tests performed on a 0.006 scale model of the Rockwell International Space Shuttle Orbiter and External Tank in the 18 inch Variable Density Hypersonic Wind Tunnel (VDHT) at NASA Langley Research Center. The Orbiter and Tank were built to Rockwell lines VL70-00089B and VL78-000061C, respectively. Tests were performed at a Mach number of 8.0 over a Reynolds Number range from 0.1 to 10.0 million per foot at 0° and -5° angle of attack and 0° sideslip angle. Transition heating rates were determined using thin skin thermocouples located at various locations on the Orbiter and ET.

The test was conducted in three stages: Orbiter plus External Tank (mated configuration); Orbiter alone, and External Tank alone. A study on the effects of boundary layer trips was also included in the test sequence.

The plotted results presented herein show the effect of configuration interference on the Orbiter lower surface and on the ET. Tabulated data are given in the appendix.

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	EFFECT OF E.T. ON ORB. FUS. HEAT TRANSFER	A	Y(BP); HAW/HT	
7	(RN/L = 0.1, ALPHA = 0.0)			1-4
5	(RN/I = 0.5, ALPHA = 0.0)			5-8
9	(RN/L = 2.0, ALPHA = 0.0)			9-12
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12	(RN/L = 0.5, ALPHA = 0.0)			33–36
13	(RN/L = 2.0, ALPHA = 0.0)			37-40
14	(RN/L = 5.0, ALPHA = 0.0)			41-44
1.5	(RN/L = 10.0, ALPHA = 0.0)	>		45-48
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16	(RN/L = 0.1, ALPHA = 0.0)	-		49-54

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	INDEA OF DAIM FIGURES (CONCINUED)	UNES (COILL	nued)	
FIGURE NUMBER	TITLE	PLOT SCHEDULE	CONDITIONS VARYING	PAGES
17	(RN/L = 0.5, ALPHA = 0.0)	В		55-60
18	(RN/L = 2.0, ALPHA = 0.0)			61-66
19	(RN/L = 5.0, ALPHA = 0.0)			67-72
20	(RN/L = 10.0, ALPHA = 0.0)			73-78
21	(RN/L = 0.1, ALPHA = -5.0)			79-84
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23	(RN/L = 0.1, ALPHA = 0.0)			91-96
24	(RN/L = 0.5, ALPHA = 0.0)			97-102
25	(RN/L = 2.0, ALPHA = 0.0)			103-108
26	(RN/L = 5.0, ALPHA = 0.0)	>		109-114
27	(RN/L = 10.0, ALPHA = 0.0)	W		115-120
-	EFFECT OF ORB. CN E.T. HEAT TRANSFER		PHI; HAW/HT	
28	(RN/L = 0.1, ALPHA = 0.0)			121–136
29	(RN/L = 0.5, ALPHA = 0.0)			137-152
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31	(RN/L = 5.0, ALPHA = 0.0)	¥		169-184
32	(RN/L = 10.0, ALPHA = 0.0)			185-200
33	(RN/L = 0.1, ALPHA = -5.0)			201-216
34	(RN/L = 5.0, ALPHA = -5.0)			217-232
	EFFECT OF ORB. ON E.T. + X23 HEAT TRANSFER		PHI;HAW/HT	
35	(RN/L = 0.1, ALPHA = 0.0)			233–248
36	(RN/L = 0.5, ALPHA = 0.0)			249–264
37	(RN/L = 2.0, ALPHA = 0.0)			265-280
38	(RN/L = 5.0, ALPHA = 0.0)			281–296
39	(RN/L = 10.0, ALPHA = 0.0)			297-312
	EXTERNAL TANK HEAT TRANSFER RATIO	아	PHI; HAW/HT	
07	(RN/L = 0.1, ALPHA = 0.0)			313-316
41	(RN/L = 0.5, ALPHA = 0.0)			317-320
42	(RN/L = 2.0, ALPHA = 0.0)			321-324
67	(RN/L = 5.0, ALPHA = 0.0)			325-328
77	(RN/L = 10.0, ALPHA = 0.0)			329-332

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ETCIDE				
NUMBER	TITLE	PLOT SCHEDULE	CONDITIONS VARYING	PAGES
45	(RN/L = 0.1, ALPHA = -5.0)	υ		333–336
97	(RN/L = 5.0, ALPHA = -5.0)			337-340
	EXTERNAL TANK WITH X23 HEAT TRANSFER RATIO		PHI;HAW/HT	
47	(RN/L = 0.1, ALPHA = 0.0)			341-344
48	(RN/L = 0.5, ALPHA = 0.0)			345-348
67	(RN/L = 2.0, ALPHA = 0.0)			349–352
50	(RN/L = 5.0, ALPHA = 0.0)			353-356
51	(RN/L = 10.0, ALPHA = 0.0)	- >		357-360

PLOT SCHEDULE:

- (A) HI/HU and H/HREF vs. X/L
- (B) HI/HU and H/HREF vs. X/C
- (C) HREF vs. X/L

NOMENCLATURE

	PLOT	
SYMBOL	SYMBOL	DEFINITION
b	-	'fodel skin thickness, inches
b/2	-	Semi span - wing, inches
С	-	Specific heat of model material, BTU/1bm-OR
c _p	-	Specific heat of air stream at constant pressure, BTU/1bm-0R
dT _w /dt	-	Rate of change of temperature with time, OR/sec
g	-	Gravitational constant, ft/sec ²
h	Н	Heat Transfer coefficient, lbm/ft2-sec
h _i	ні	Heat transfer coefficient in interference flow fields, lbm/ft -sec
^h ref	HREF	Reference heat transfer coefficient (stagnation on 1-foot full scale sphere), lbm/ft ² -sec
h(T _o)	-	Local T/C heat-transfer coefficient
h _u	ни	Heat transfer coefficient in undisturbed flow rield, lbm/ft2-sec
н	-	Enthalpy, BTU/1b
H _{AW}	HAW	Adiabatic wall enthalphy, BTU/1b
Н	НО	Stagnation enthalpy
k	-	Thermal conductivity coefficient , BTU/ft-sec
М	MACH	Mach number
Po	PO	Stagnation pressure, PSIA
P		Static Pressure, PSIA

NOMENCLATURE (Continued)

SYMBOL	PLOT SYMBOL	DEFINITION
		Prandtl number
P r	OD OM	Heat flux, BTU/ft ² -sec
ģ	QDOT	Heat flux, BTU/ft -sec
^q ot		Stagnation-point heat flux calculated by Fay and Riddell's equation, BTU/ft-sec
ų̇́ν ^{/q̇} ot		Ratio of wall heat-transfer rate to theoretical stagnation point heat-transfer
r _s	-	rate Radius of scaled one-ft sphere, inches
r	HAW/HT	Adiabatic wall temperature ratio $(T_{aw}/T_{o}) = recovery factor$
R	-	Gas constant, ft-lb/slug R
R _e	-	Reynolds Number
R _{e/ℓ}	RN/L	Unit Reynolds number, million per foot
t		Time, sec
To	TO	Stagnation temperature, °R
T/C		Thermocouple
T _w		Wall temperature, ^O R
u		Velocity, ft/sec
ij.		Density of model material, lbm/ft ³
X/c	X/C	Fraction of local chord
x _o		Orbiter longitudinal coordinate, in.
x _T		Tank longitudinal coordinate, in.
X/L		Fraction of fuselage length
YBP	Y(BP)	Orbiter butt plane dimension, in.
Yo		Orbiter lateral coordinate, in.

NOMENCLATURE (Concluded)

		,
SYMBOL	PLOT SYMBOL	DEFINITION
^{Y}T		Tank lateral coordinate, in.
Z _o		Orbiter vertical coordinate, in.
z _T		Tank vertical coordinate, in.
α	ALPHA	Angle between model centerline and wind vector, deg.
μ		Viscosity of air, lb-sec/ft
٥		Density of air, slug/ft ³
β	BETA	Angle of sideslip, deg.
ф	PHI	T/C radial location angle, deg.
[‡] m		Model roll angle, deg.
SUBSCRIPTS		
aw		Adiabatic wall
α		Tunnel free-stream conditions
m		Measured
o		Tunnel stagnation conditions
t		Theoretical
w		Model wall conditions
•		Primed quantities indicating conditions behind normal shock

GENERAL

RUN NO. Beckman Number--comes from instrument used to record run number

R"MARKS

This series of tests was conducted using a 0.006-scale model of the Rockwell International Space Shuttle Orbiter and External Tank. The tests were performed in the NASA Langley Research Center 18-inch Variable Densit: Hypersonic Wind Tunnel at a Mach number of 8.0.

Test variables included Reynolds numbers of 0.1, 0.5, 2.0, 5.0 and 10.0 million per foot and angles of attack of 0.0 and -5.0 degrees at zero degree sideslip. Both the mated Orbiter/External Tank configuration and the isolated Orbiter and External Tank were tested. Tests were made with and without boundary layer trips. Figure 3 shows the model tunnel installation and the various boundary layer trips used. The initial configuration utilizing boundary layer trips incorporated a 3/8-inch wide band of #25 (.030 Dia) sand grit applied circumferentially 0.5 and 1.2 inches aft of the nose on the Orbiter and External Tank, respectively, using lacquer as an adhesive. After three runs, most of the grit had blown off. Those data are not included in this report due to their questionable validity. However, Figures 3b and 3c show the flow structure of these tests.

A second method was then devised to trip the flow. Steel balls 0.0625" in diameter were spot welded 2 diameters apart to bands of stainless steel shim stock (0.001 in. thick and 0.125 in. wide), which was then spot welded to the nose of the Orbiter and ET at locations described earlier. Analysis of the Schlieren photographs from tests with this mechanism, Figure 3d, indicated that the trip (.0625" ball) was too

REMARKS (Continued)

large. The balls were subsequently reduced to .0468 diameter and spaced 3 diameters apart, which was the configuration used for the data in this report. Figure 3e depicts the flow pattern with this latter trip mechanism.

CONFIGURATIONS INVESTIGATED

The models were .006-scale representations of the Rockwell International Space Shuttle Orbiter and External Tank. The configurations are defined by Rockwell drawings VL70-000089B and VL78-000061C, respectively. The model was designated 41-0T.

The Orbiter and External Tank instrumentation consisted of 168 iron-constantan thermocouple with Kapton insulation, spot welded to thin skin 15-5 ph stainless steel inserts. Figure 2 presents specific heat vs. temperature for 15-5 stainless steel.

The Orbiter was cast in one piece utilizing Grumman Aerospace material "G" and was instrumented with 57 thin skin thermocouple inserts. The underside centerline region and B.P. 70 were instrumented with 25 thermocouples in two parallel rows. The underside of the left wing was instrumented with 26 thermocouples in three chordwise rows. Six thermocouples instrumented the left windshield. The Orbiter thermocouple locations and skin thicknesses are presented in Figure 1b and Table V.

The External Tank was fabricated from stainless steel plate and instrumented with 111 thin skin thermocouples. The thermocouple locations and skin thicknesses are presented in Figure 1c and Table VI.

The following list defines configuration components tested. Since there were no interchangeable or movable parts on the Orbiter, the Orbiter configuration was defined as $\mathbf{0}_1$.

CONFIGURATIONS INVESTIGATED (Continued)

where:

$$O_1 = B_{10} \quad C_5 \quad D_7 \quad F_4 \quad M_3 \quad W_{87} \quad V_5$$

and

B₁₀ - Fuselage

C₅ - Canopy

D₇ - Manipulator Housing

F₄ - Body Flap

M₃ - OMS Pods

 W_{87} - Wing

V₅ - Vertical Tail

T₈ - External Tank

Bounday layer trips were denoted as:

 X_{21} - #25 Sand Grit (.030 dia.)

 \mathbf{x}_{22} - .0625 in. dia. steel balls 2 dia. apart

 x_{23} - .0468 in. dia. steel balls 3 dia. apart

Table III provides a complete description of model dimensional data.

TEST FACILITY DESCRIPTION

The Langley Mach 8.0 Variable Density Hypersonic Tunnel is located in Building 1247D and is under the direction of the Aero-Physics Division. This tunnel is used for fundamental aerodynamic and fluid dynamic investigation over large Reynolds number ranges obtaining pressure and heat transfer measurements. The test medium is air and is heated by a combination of Dowtherm and electrical resistance heaters. The models are sting mounted and injected into the established flow from the bottom of the test station. The tunnel has an axially symmetric contoured nozzle with a cross section of 18 inches in diameter and a core of 4 to 14 inches (depending on pressure).

Examples of operating conditions are as follows:

TEST PROCEDURE

Prior to tunnel installation, all thermocouples were checked for proper operation by applying a heat input (a soldering iron) to the T/C and observing the instrumentation read out. The models were then installed in the tunnel, in the inverted position, and spot checks made on the instrumentation.

Normal tunnel run procedure was for the model to be out of the flow during tunnel start-up and then injected into the established flow for a period of 4 to 5 seconds for data recording. The model was then removed from the flow and the tunnel stopped. After a pause for model and tunnel cooling, the tunnel was opened and model changes made in preparation for the next run.

A maximum of 168 channels of data was required for complete thermal mapping of the model. However, the tunnel instrumentation was limited to 90 channels of data recording. Therefore, to obtain all data required, the testing sequence was broken into four groups. (Reference Table IV, which shows T/C hook-up grouping.) The first group was ET-A, recording data points on the External Tank in the presence of the Orbiter. The second group was Orbiter plus ET-B, which was recording data points on the Orbiter and External Tank. The third and fourth groups were Orbiter and External Tank alone, respectively.

In addition to the test sequence described above, each group was repeated utilizing boundary layer trips.

When the Orbiter alone configuration was being tested, only 57 of

TEST PROCEDURE (Concluded)

the 90 data channels were utilized. However, the remaining thermocouples on the External Tank were measuring ambient temperatures in the tunnel injection chamber.

DATA REDUCTION

The thermocouple heat-transfer data were reduced using the onedimensional thin wall heat transfer equation:

$$\dot{q} = Wcb \frac{dT_w}{dt}$$
, Btu/ft²-sec

The density W for the model material was:

		W (Den	sity)
Material	Condition	Lbm/in ³	Lbm/ft ³
15-5 ph	н-1150	0.283	491

The theoretical stagnation point heat transfer rate was calculated for a scaled 1-foot diameter sphere using the Fay-Riddell equation:

$$\dot{q}_{ot} = 0.94 (\rho_w \mu_w)^{0.5} (\rho_o \mu_o / \rho_w \mu_w)^{0.4} (H_o - H_w) (\frac{d_u}{d_x})^{0.5}$$

where:

$$\mu = \frac{0.0232 \times 10^{-6} \text{ T}^{0.5}}{1 + (220/\text{T})}$$

and:
$$\frac{d_u}{d_x} = (1/r_s) [2RT (1 - P_{\infty}/P_o)]^{0.5}$$

Local heat transfer coefficients were computed for each T/C:

$$h_{local} = \dot{q}/rT_o - T_w$$

DATA REDUCTION (Continued)

The ratio of the local heat transfer coefficient to reference heat transfer coefficient was computed:

where:

$$h_{ref} = \frac{\dot{\sigma}}{rT_o} - \frac{\dot{\sigma}}{T_{aw}}$$

Recovery factors (r) of 0.85 and 0.90 were used.

The data figures present H/HREF and HI/HU. The H/HREF data actually represent HI/HREF and HU/HREF, interference and undisturbed flow data, respectively. The interference data were obtained with the Orbiter in the presence of the ET or vice versa while the undisturbed data were taken on the configurations alone. The condition that prevails can be determined by reading the configuration description in the plot legend and associating it with the appropriate symbol.

TABLE I TEST : IH-17 DATE : **TEST CONDITIONS** M = 8.0BECKMAN NO. REYNOLDS NUMBER TOTAL PRESSURE STAGNATION TEMPERATURE (million per foot) (pounds/sq. inch) (degrees Fahrenheit) 770 1661 21 .5 96 790 1662 1663 2.0 500 900 1664 5.0 680 935 1000 1665 10.0 2525 21 750 .1 1666 5.0 950 1667 750 .1 1668 21 760 775 1669 .5 83 920 1670 2.0 500 1671 5.0 750 930 2500 960 1672 10.0 750 .1 18 1676 1677 .5 82 815 480 925 2.0 5882 5883 5.0 775 925 N/A BALANCE UTILIZED: _ COEFFICIENT TOLERANCE. ACCURACY: CAPACITY: NF SF ΑF PM RM ΥM COMMENTS:

TABLE I (Continued) TEST: IH-17 DATE: **TEST CONDITIONS** M = 8.0REYNOLDS NUMBER TOTAL PRESSURE STAGNATION TEMPERATURE BECKMAN NO. (million per foot) (pounds/ sq. inch) (degrees Fahrenheit) 5884 10.0 2500 980 5885 .1 18 765 5886 5.0 725 920 5887 0.1 30 760 5888 82 0.5 800 5889 2.0 495 855 5890 5.0 715 920 5891 10.0 2510 975 589**2** .1 18 775 5893 .5 81 815 5894 2.0 480 900 5895 5.0 725 935 5896 10.0 2500 990 572 .1 18 730 573 <u>.</u>5 83 760 574 2.0 445 668 N/A BALANCE UTILIZED: _ COEFFICIENT CAPACITY: ACCURACY: TOLERANCE: NF SF AF PM RM ΥM COMMENTS:

TABLE I (Continued) DATE : TEST: IH-17 **TEST CONDITIONS** M = 8.0**REYNOLDS NUMBER** TOTAL PRESSURE STAGNATION TEMPERATURE BECKMAN NO. (million per foot) (pounds/sq. inch) (degrees Fahrenheit) 575 5.0 735 910 10.0 2505 995 576 750 577 17 730 920 5,0 579 21 750 .1 583 920 5.0 720 584 BAD RUN 585 14 760 1171 .1 780 79 .5 1172 2.0 485 900 1173 900 5.0 740 1175 970 10.0 2510 1176 725 .1 16 1177 .5 81 760 1178 470 900 2.0 1179 730 935 5.0 1180 BALANCE UTILIZED: N/A COEFFICIENT TOLERANCE: CAPACITY: ACCURACY: NF SF AF PM RMCOMMENTS:

21

ST: IH-17			DATE :
	TEST COND	DITIONS	
BECKMAN NO.	REYNOLDS NUMBER (million per foot)	TOTAL PRESSURE (pounds/sq. inch)	STAGNATION TEMPERATUR (degrees Fahrenheit)
1181	10.0	2510	990
1182	2.0	530	830
1183	5.0	725	900
1185	10.0	2520	995
1186	.1	15	755
1187	.5	80	800
1188	2.0	480	880
1189	5.0	720	905
11.91	10.0	2520	975
			
BALANCE UTILIZED:	N/A		005551015117
	CAPACITY:	ACCURACY:	COEFFICIENT TOLERANCE:
NF			
SF.			
AF			
PM			
RM			
YM			
COMMENTS:			

TABLE II CREITER + TAMK

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TEST: IH	L1-		DAT	ATA SET		NUMB	ER CGI	RUN NUMBER CGLLATION SUMMARY	N SUM	MARY		DATE					
CATA SET	40) E 40, 0(3, 4)	SCHD.	Ц			PAR	AMETER	PARAMETERS/VALUES	ES			Oi Z		MACH NUMBERS	MBERS		
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7 CK			H	.5									1662	1662 1677			
<i>3</i> 33				2.0									1663	1663 588			
5 0.				5.0									7.73/	1664 5883			-
S.M.				0'01						ļ 			1665	1665 5884			
700		-5		.1									1666	1666 5885			ΤE
Los		-5		5.0									1667	5886			E S T
B(X)	0.+T.+ X23			1.									1186	1186 5887			RUN
. To				.5									1811	1187 5288			UN
015,				2.0									1811	1181 5839			18E F
110				5.0									6811	1189 5890			≀5
210	4	4 4	>	10.0					ļ				1611	161 581			
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بر ان م	i	Boy		H	إطن	FFFICEN RNALT	TAUL	•	2	2 4 4 5	7 + 5	PRE DES	<u> </u>	48.1)	, A E	H/HREF	úu.
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REPRODUCIBILITY OF THE ORIGINAL PAGE IS POOR

TABLE II (Continued)

ı		N TW W					
TEST: IM-1	۲۱-۲	DATA SET/RUN	SET/RUN NUMBER COLLATION SUMMARY		DATE:		
DATA SET		SCHD.	DARAMETERS				
IDENTIFIER	CONFIGURATION	a B MKH Qu/O	ONOME LEAST VALUES		MACH N	MACH NUMBERS	
RPROIS	TR	_					
014)			1/2//		
DIS		2.0			72/		
710		5.0			173		
רוכ		0:01			(7)		
210		-5-			9///		
PIO		-5			283		TES
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120					1/78		UME
277					1179		3E H:
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SIMETOTES	10						
							_

TABLE II (Concluded)

The continuation Section Parameters (Values) Section Sec									ΤE	STF	RUN	NUM	BER	s		 	 1	,	7	75.76	1	1	_
Pata Set Patameters values Pate Patameters values Patameters		JMBERS																			4		
DATA SET. RUN NUMBER COLLATION SUMMARY DATE		MACH	4KB.A	2685	5883	5894	5845	5896	212	579	572	573	413	575	576					61			
CONFIGURATION SCHO. CONFIGURATION SCHO. CONFIGURATION SCHO. CONFIGURATION SCHO. SC		OZ.	RUNS																	55	41411		
CONFIGURATION	UMMARY																			49	a e e e e e e		
CONFIGURATION SCHO. CONFIGURATION SCHO. CONFIGURATION SCHO. CONFIGURATION SCHO. SCHO. CONFIGURATION SCHO. SC	LLATION S	RS/VALUES																		43	-	•	
CONFIGURATION G B MACH	UMBER CO	PARAMETE																		37		FFICENTS	
CONFIGURATION SCHD. CONFIGURA	SET RUN N		[0/n]		5		0.0	مه	1	0.9	1	.5	0.5	0.9	დე					31	44444	COE	
CONFIGURATION O: + X23 O:	₹	CHD.	BMACH	0									,,	6						25	441444		
			l						5-	2-	٥									19	******		
			ONFIGURATIC	×					ā	-					•					13			
	1 1	1			026	בבס	820	520	030	150	750	033	D34	553	980			_		7	44444		

TABLE III MODEL DIMENSIONAL DATA

MODEL COMPONENT : BODY - BLO		
GENERAL DESCRIPTION : Fuselage, 2A co	nfiguration ligh	ntweight orbiter
per Rockwell lines VL70-000089B		-
MODEL SCALE: 0.00593		
DRAWING NUMBER: VL70-000089B, VL70	0-000092, -093,	-094A
DIMENSIONS :	FULL SCALE	MODEL SCALE
Length	1328.3	7.89682
Max Width (@ $X_{0} = 1528.3$), In.	265.0	1.57145
Max Depth (@ $X_0 = 1480.52$), In.	243.0	1.47064
Fineness Ratio	5.012	5.012
Area - Ft ²		
Max. Cross-Sectional	456.4	0.01605
Planform		
Wetted		
Base	-	

MODEL COMPONENT: CANOPY - C5

GENERAL DESCRIPTION: Orbiter canopy for lightweight orbiter configuration

MODEL SCALE: 0.00593

DRAWING NO.: VL70-000092

DIMENSIONS:	FULL SCALE	MODEL SCALE
Sta. Fwd Bulkhead, Ih.	391.0	2.31863
Sta. T.E In.	560.0	3.32080
Canopy/body intersection, In.	391.0	2.31863

MODEL COMPONENT : MANIPULATOR	HOUSING - D7	
GENERAL DESCRIPTION : 2A configur	ration	
MODEL SCALE: 0.00593		
DRAWING NUMBER : VL70-000093, SS-A	A00092	· · · · · · · · · · · · · · · · · · ·
DIVIDUCIONO		
DIMENSIONS:	FULL SCALE	MODEL SCALE
Length , In.	881.0	5.22433
Max Width , In.	51.0	_0.30243
Max Depth, In.	23.0	0.13639
Fineness Ratio		
Area		
Max. Cross-Sectional	***************************************	
Planform		
Wetted		
Base		
Location at:		
Centerline fuselage:		
BP = 0.0 WP = 500.0 In. FS X_0 426.0 to X_0 1307.0) In. FS	

MODEL COMPONENT : BODY FLAP - FL		
GENERAL DESCRIPTION : Aft body fl	ap used on lightwe	eight orbiter
configuration.		
MODEL SCALF 0.00593		
DRAWING NUMBER . VL70-000094A SS-A	00092	
DIMENSIONS:	FULL SCALE	MODEL SCALE
Length, In.	84.70	0.50227
Max Width , in.	265.00	1.57145
Max Depth		
Fineness Ratio		
Area - Ft ²		
Max. Cross—Sectional		
Planform	142.64	0.00502
Wetted		
Base	38.65	0.00136

MODEL COMPONENT : OMS POD - M3		
GENERAL DESCRIPTION : 2A lightweight	orbiter configu	ration.
		
MODEL SCALE: 0.00593		
DRAWING NUMBER : VL70-000094A . SS-	A00092	
DIMENSIONS:	FULL SCALE	MODEL SCALE
Length , In.	346.0	2.95178
Max Width (@ $X_0 = 1450.0$), In.	108.0	0.64044
Max Depth (@ $X_0 = 1500.0$), In.	113.8	0.67483
Fineness Ratio		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Area		
Max. Cross-Sectional		
Planform		
Wetted		·
Base		
Centerline of OMS Pod:		
$Z_O = 463.9$ In. FS: WP 400 + 6 $Y_O = 80.0$ In. FS Length: X_O 1214.0 to X_O 1560.0 =		S

MODEL COMPONENT: WING-Way		
GENERAL DESCRIPTION: Orbiter configuration. NOTE	: Dihedral ang	le is defined at
the lower surface of the wing at the 75.33% element		
perpendicular to the FRL.		
MODEL SCALE: 0.00593	···	
TEST VO.	DWG. NO. VL70	0-000093
DIMENSIONS:	FULL-SCALE	MODEL SCALE
TOTAL DATA Area (.neo.) Ft2 Planform Span (Theo In. Aspect Ratio Rate of Taper Taper Ratio Dinedral Angle, degrees Incidence Angle, degrees Aerodynamic Twist, degrees Sweep Back Angles, degrees Leading Edge Trailing Edge 0.25 Element Line Chords: Root (Theo) B.P.0.0. Tip, (Theo) B.P. MAC Fus. Sta. of .25 MAC W.P. of .25 MAC	2690.0 936.682 2.265 1.177 0.200 3.500 3.000 +3.000 -10.240 35.209 689.24 137.85 474.81 1136.89 299.20	0.09459 5.55452 2.265 1.177 0.200 3.500 3.000 +3.000 -10.240 35.209 4.08919 0.81745 2.81562 6.74176 1.77426
B.L. of .25 MAC EXPOSED DATA Area (Theo) Ft ² Span. (Theo) In. BP108 Aspect Ratio Taper Ratio Chords Root BP108 Tip 1.00 b MAC Fus. Sta. of .25 MAC	182.13 1752.29 720.68 2.058 0.245 562.40 137.85 393.03 1185.31	1.08003 0.06162 4.27363 2.058 0.245 3.33503 0.81745 2.33067 7.02889
W.P. of .25 MAC B.L. of .25 MAC Airfoil Section (Rockwell Mod NASA) XXXX-64 Root b = 2 Tip b = 2 Data for (1) of (2) Sides	0.10 0.12	0.10 0.12
Leading Edge Cuff 2 Planform Area Ft2 Loading Edge Intersects Fus M. L. @ Sta Loading Edge Intersects Wing @ Sta	120.33 560.0 1035.0	0.00423 3.32020 6,13755

MODEL COMPONENT: VERTICAL - V5		
GENERAL DESCRIPTION: Centerline vertical te	ail, double-wedg	e airfo <u>il wi</u> th
rounded leading edge.		
MODEL SCALE: 0.00593		
DRAWING NUMBER: <u>VL70-000095</u> , SS-A00092		
DIMENSIONS:	FULL SCALE	MODEL SCILE
TOTAL DATA		
Planform Span (Theo) - In. Funct Ratio Rate of Taper Taper Ratio Sweep-Back Angles, Degrees. Leading Edge Trailing Edge O.25 Element Line Chords: Root (Theo) WP M.C	413.25 315.72 1.675 0.507 0.404 45.000 26.249 41.130 268.50 108.47 199.81	0.01453 1.87222 1.675 0.507 0.404 45.000 26.249 41.130 1.59220 0.62323 1.18487
Fus. Sta. of .25 MAC W.P. of .25 MAC B.L. of .25 MAC	1463.50 635.52 0.0	8.67856 3.76863 0.0
Airfoil Section Leading Wedge Angle - Deg. Trailing Wedge Angle - Deg. Leading Edge Radius	10.00 14.92 2.00	10.00 14.92 0.00186
Void Area	13.17	0.00046
Blanketed Frea	12.67	0.00045

TABLE III (Cont'd)

MODEL COMPONENT : EXTERNAL TANK - T	8	
GENERAL DESCRIPTION : External oxy	gen-hydrogen tan	k lightweight
orbiter configuration to which the orb	iter and the two	solid rocket
motors attach.		
MODEL SCALE: 0.00593		
DRAWING NUMBER: VL70-00061C, VL78-00	0018, SS-A00093	
DIMENSIONS :	FULL SCALE	MODEL SCALE
Length , In.	1989.0	11.79477
Max Width (Dia.), In.	324.0	1.92132
Max Depth		
Fineness Ratio	6.1389	6.1389
Area - Ft ²		
Max. Cross-Sectional		
Planform		
Wetted		
Base		-
WP of tank centerline (Z_m) . In.	400.0	2,3720

TABLE IV. THERMOCOUPLE GROUPINGS

GROUPING	THERMOCOUPLE NUMBERS
ET-A	ET-1, 3-8, 10, 12-14, 18-21, 25-26, 30, 32-43, 46-57, 60-72, 76-86, 90-100, 103-111
ET-B	ET-2, 9, 11, 15-17, 22-24, 27-29, 31, 44-45, 58-59, 73-75, 87-89, 100-102
ORB-A	ORB 1-57

TABLE V Orbiter Thermocouple Locations

T/C No.		* Local		Remarks	T/C		* Loca		Remarks	
1	•033	y - b/2 Y=.047		Windshield	No. 31		Y = -1/2 Y = .415	×/I = ×/c	Fuselage	
2	.031	Y= .0147	.1612	1	-	 	 	 		
3	.034	Y=.047			32 33		b/2=.40		Wing	
- 14		Y=.213			34	.0312	 	.250		
5		Y=.196			35	.033		.300 .400		
<u> </u>		Y=.178	.1724		36	 	 	 		
7	.033	Y=0	.0875	Fuselage		.0335	 	.500		
		1=0		rusetage	37	.032		,600	····	
<u> </u>	.032 .031		.125		3 8 3 9	. 0315	 	.700 .800		
10	.0305		.150		40	.0310				
11	.030		.175		41	.0310	υ/2=.60	.175		
	.030		.200				0/2=.cc	 		
12 13	.0295		.250		42	.032		.200		
14	.0295		.300		43	.031		.300 .400		
15	رد ده.		.400		45	.032		.500		
16	.0302		.500		46	.032		.000		
17	.0312		. 600		47	.0325		.700		
ld	.0315		.700		48	.031		.800		
19	.031		.800		49	.0315		.875		
30	.0245		.900		50	.035	b/2=.80			
.21	.030		$1.\infty$		51	.033		.300		
:3:3	.0305	+	1.025		52	.033		•)+ 0 0		
23	. 3 285	Y=.415	.350		53	.0315		.500		
514	.0285	:	•375		54	.032		, pOO		
25	.0315		.400		55	.032		.700		
26	.0325		.500		56	.0335		.800		
57	.0320		.60C		57	.033		.850		
28	.0315		.700							
<i>4</i>)	.0325		.೮೦೦							
30	.0315		.900	•						

^{*} model scale, in.

x/1 (t/c's 1-31) x/c (t/c's 32 57)

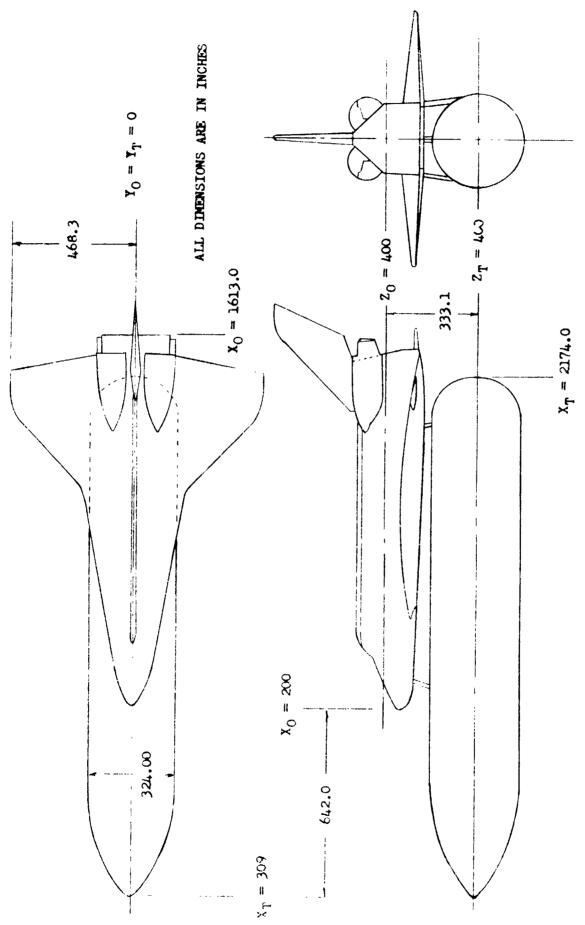
TABLE VI
External Tank Thermocouple Locations

T/C	Skin	Loca	tion	T/C	Skin	Loca	tion	T/C	Skin	Loca	tion
No.	Thick,	×/1	φ∼deg.	No	Thick	×/1	φ~deg.	No.	Thick.	x/	φ~deg
1	•037	J	Nose	34	.032	.40	135	67	.030	.60	j_ (
	.030	.905	180	35	.033	.40	112.5	68	.030	.ပ်ာ	t)
3	.030	.01		36	.033	.40	90	69	.033	•025	160
1.	.030	.0 2		37	.030	.40	67.5	70	.033	.65	180
5	.030	.04		3 8	.029	.40	45	71	.032	.65	157.5
	.330	.06		3 9	.031	.40	Q	72	.031	<u>. 65</u>	135
7	.0 29	.os		40	.032	.425	180	73	.030	.65	112.
۲	.020	.10		41	.032	.45	100)	74	.030	.65	<u> 30</u>
14	.ე28	.125		42	.033	.45	157.5	75	.030	.65	67.5
10	.ე 2ი	.15		43	•031	.45	135	7ó	.033	.675	ιω
11	.02ರ	.175		1+1+	.031	•45	112.5	77	•033	. 70	160
1८	.೨೭೮	.50	•	45	.031	.45	n	7 ^U	.532	- 70	157.7
L.₹	. 025	.೭೦	ઝ૦	46	.033	•475	180	79	.032	•70	135
14	.032	, s ,	180	47	.033	.50	180	80	.031	.70	112.5
14	.029	.25	√ 0	148	• > 33	.50	157.5	ರ1	.330	.70	N
1:	•030	•275	112.5	49	.032	•50	135	ઇંટ	.031	•70	27.57
17	.)30	.275	90	50	.033	•50	112.5	83	.029	.70	47
ોડ	•034	. 30	180	51	.031	•50	Ж	34	.033	•75	1έω
1,	.031	. 3.)	112.5	52	.031	•50	67.5	მ5	.033	•75	15/.5
20	.031	.30	્રા	53	.030	•50	45	86	.032	•75	1.35
اے	.030	. 30	67.5	54	.032	.525	150	উ 7	.031	•75	112.5
2.2	.031	• 325	135	55	.03∠	•55	160	- 88	.031	•75	A)
.43	.031	•3 <u>2</u> 5	112.5	5 6	.033	•55	157.5	£9	.030	•75	07.5
د ^{ار} اء	.૦૩૫	.325	90	57	.031	• 55	135	90	.033	.80	1,00
25	.032	•35	180	58	.031	•55	1.12.5	91	.033	.80	157.5
20	.032	• 35	135	59	.031	•55	' AO	92	.032	.აა	135
3;	.031	•35	112.5	60	.032	•575	150	93	.032	.80	112.5
20	.)31	• 37	<i>y</i> 0	61	.032	.60	180	94	.031	.60	90
2	.031	•35	67.5	62	.0 3 3	.60	1.57.5	95	.030	.80	<u> </u>
3.1	•93 4	•315	180	63	.031	.60	135	96	.024	.თ	45
31	.૦૧	.375	135	64	.031	.60	112.5	97	. 230	٠٥٥	0
3/	.033	•4()	180	65	.031	.60	√ ×0	98	.033	. 85	180
١,٠	.032	.40	157.5	<u>5</u> 6	.031	.∞	67.5	79	.33.4	•05	157.5

RUPL BURLLY OF THE OLD STORE

TABLE VI (Lontinued)

TC	Skin	Loca	tion
No	Thick	*/	φ~deg
CCI	.03_	٤,	135
101	.030	•85	112.5
102	.030	.⋶5	30
103	.033	•30	180
104	.033	.90	157.5
105	.032	.40	135
1)0	.03Ľ	.90	112.5
107	.031	.90	90
106	.030	.90	67.5
10 ;	•023	.50	45
110	• 53.5	•935	180
111	.J:	• 174	150



Ι,

Figure 1. Model Configuration

General Arrangement

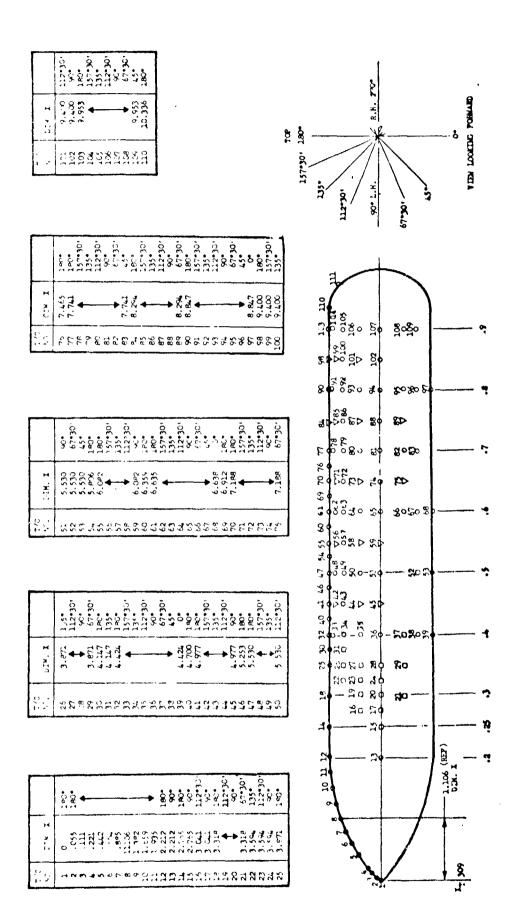
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					25	50 54 56	_	1	44 1 46 47		32 34 35 36 37 38 39 40		28 29	• •	7	†	67 61 81				x ₀ 1528.3	
	.8 5/2	1 = 2.222	DIST. 7/C FROM L.E.	.25	۳: 	4	κί.	. 6 . 934	. «	.85	֓֞֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓	\	7,			#	<u>.</u>		ملد		5	
	/2	- 1.667	DISTR. FROM NO.	5 .423 50	_			1.114 54			1.911	23	\;	62 42	•	+			1 1	2 2 3		
	.6 b/2	γ = 1	NO. X/C	41 .175	÷	43	7.	5	6. 7.	8.	49 875		\	/		•	12 13					
		11	DISTR. FROM L.E.	.742	.819	.972	1.279	1.586	2.200	2.507	2.814				\	000	-8 -8					
ONS	.4 b/2	Y = 1.111	x/c	.225	.25	m.	٠.	s:	۰ ۰	; æ.	٥.										× = 500	
OCATI				32	33	34	_		÷ «		\$					_ 0 - 7					×	•
THERMOCOUPLE LOCATIONS		15	FROM x ₀ 200	2.757	2.954	3.151	1,939	4.726	5.514	7.089	7.877					>						
THERM	BP 70	.4	χ	.35	.375	4.	٠.	٠	~. ¤	. o.	0.											
		>	2	23	24	52	92	27	82 02) R	۔							•				
			DIST. FROM X ₀ 200	689.	.788	.985	1.182	1.378	1.595	2.363	3.151	3.939	4.726	5.514	6.302	7.089	7.877					
	,	•	۲/۲	.0875	86.	.125	 Sč.	.175	. z	ġ ~;	4	s.	9.	.7.	8.	o.	1.0					
			Š.	7	8	6	70		12	· =	15	16	17.	18	6	20	27					
		•	>	.047	780.	.047	.213	961.	2													
	10100000	MINDSHIELD	FROM x _o 200	1.210	1.272	1.334	1.251		- 358													
	l		g	-	2	. w	•	•	۰۱													

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b. Orbiter Thermocouple LocationsFigure 1 (Continued)



41-0TS 0.006 External Tank Thermocouple Locations

c. External lank Thermocouple Locations

Figure 1. (Concluded)

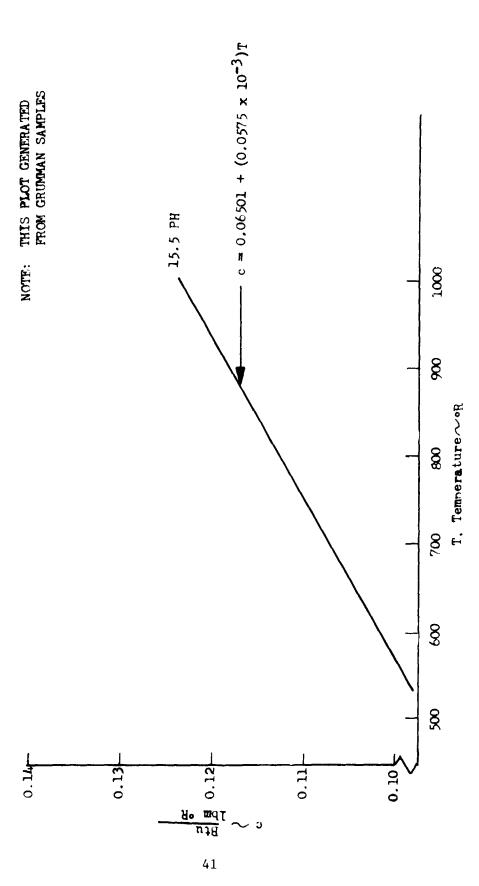
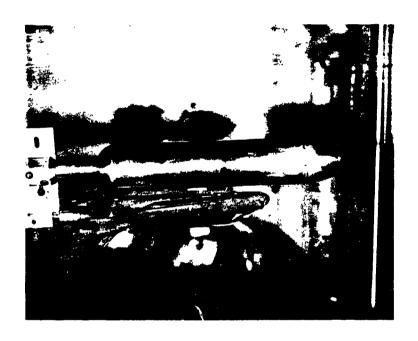
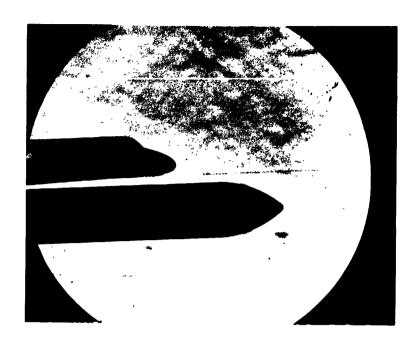


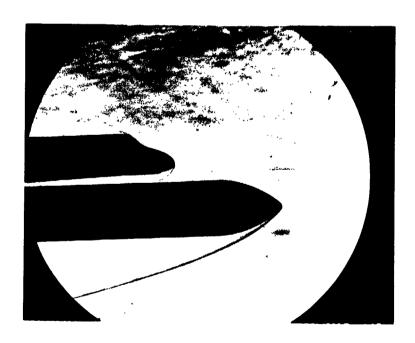
Figure 2. Specific Heat vs. Temperature for 15-5 ph Stainless Steel



a. Model Installation/Orientation Figure 3. Model Photograph:



b. Schlieren of Mated Configuration with #25 (.030 Dia.) Sand Grit P_0 = 83 psig, T_0 = 775°F, α = 0°)



c. Schlieren of Mated Configuration with #25 (.030 Dia.) Sand Grit (particles blown off) ($P_0 = 750 \text{ psig}$, $T_0 = 930^{\circ}\text{F}$, $\alpha = 0^{\circ}$)

Figure 3. (Continued)



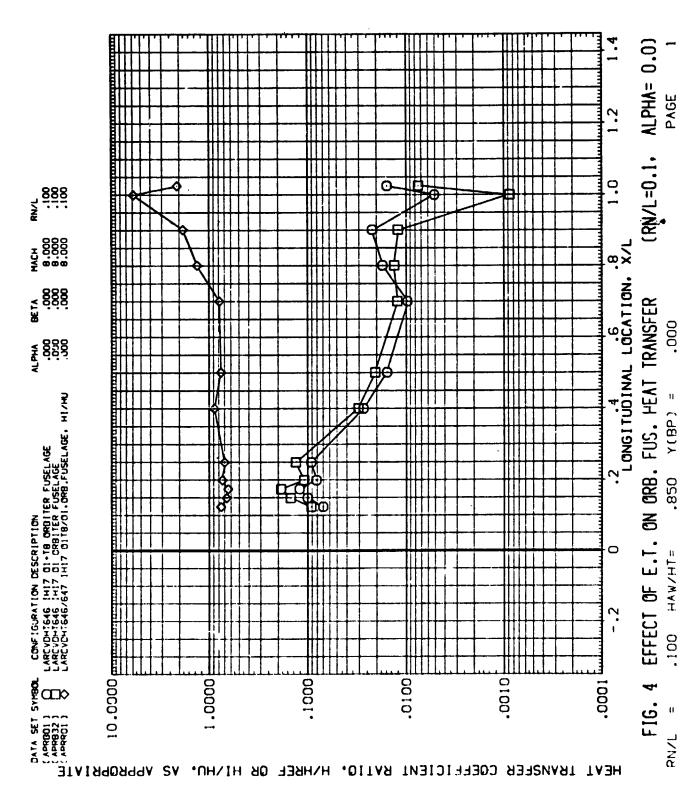
d. Schlieren of Mated Configuration with .0625 Dia. Steel Balls $(P_o = 495 \text{ psig}, T_o = 855^{\circ}F, \alpha = 0^{\circ})$

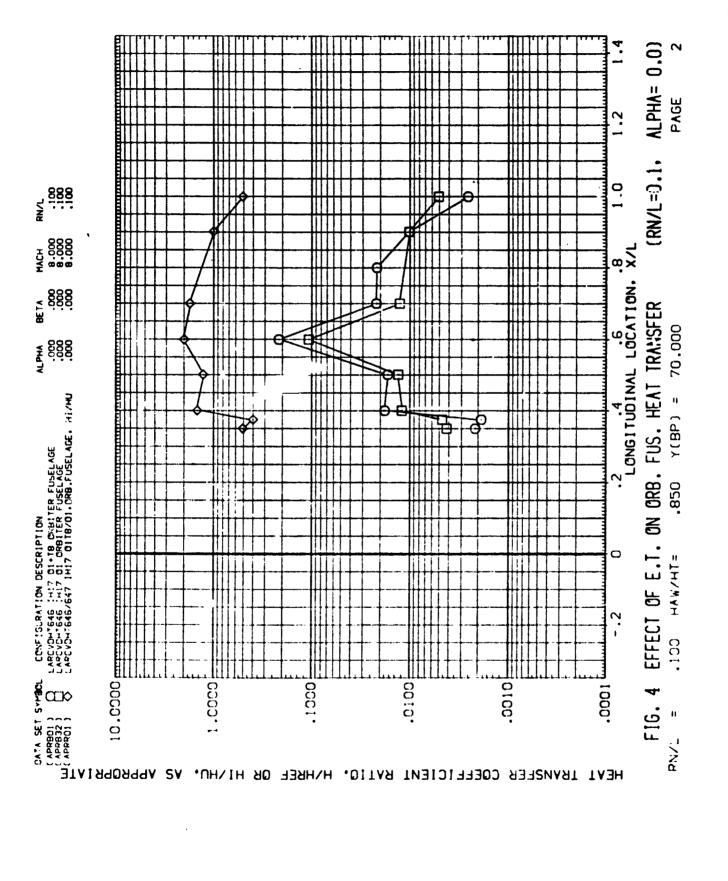


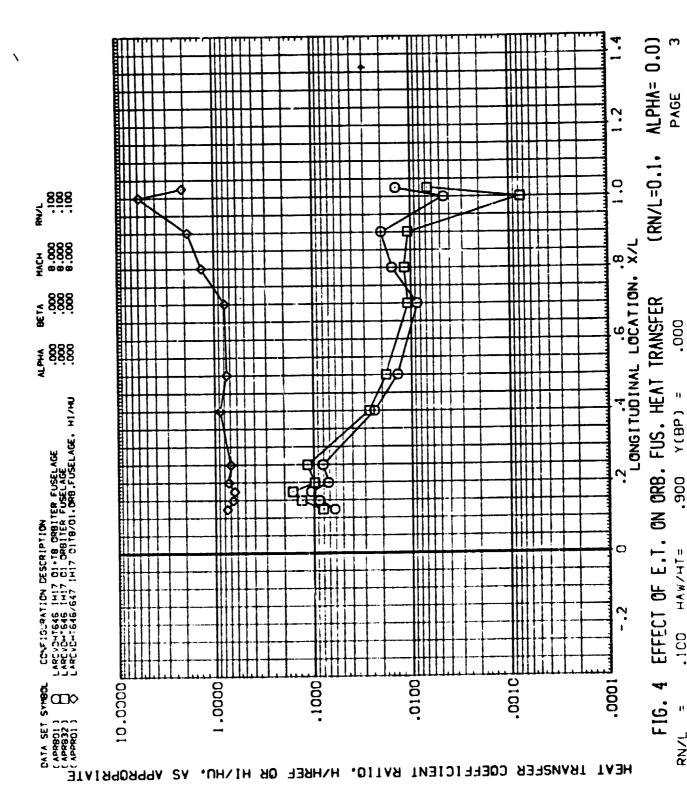
e. Schlieren of Mated Configuration with 0.0468 Dia. Steel Balls $(P_0 = 480 \text{ psig}, T_0 = 880^{\circ}\text{F}; \alpha = 0^{\circ})$

Figure 3. (Concluded)

DATA FIGURES

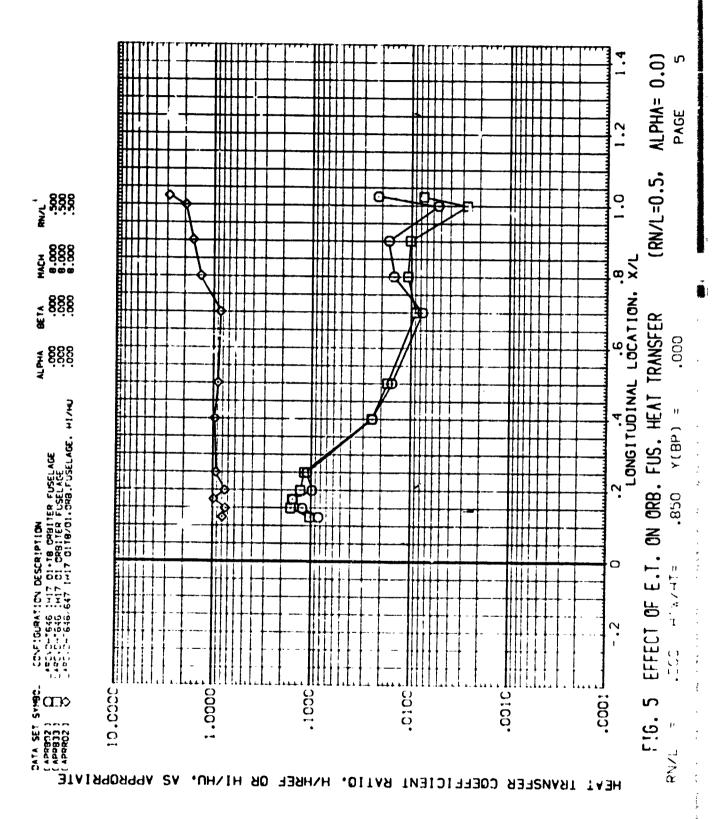




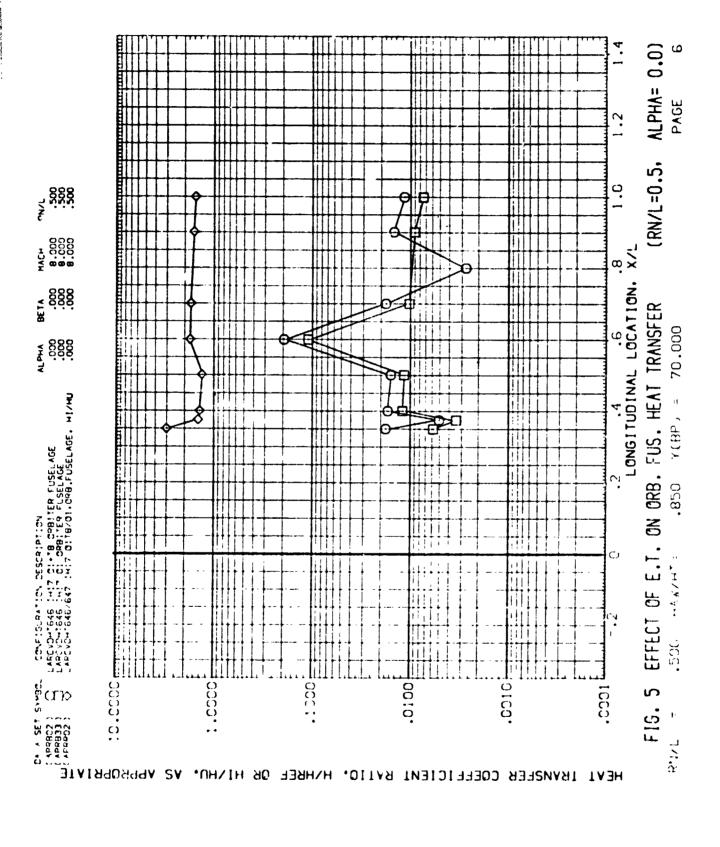


HEAT TRANSFER COEFFICIENT RATIO, HYHREF OR HIVHU, AS APPROPRIATE

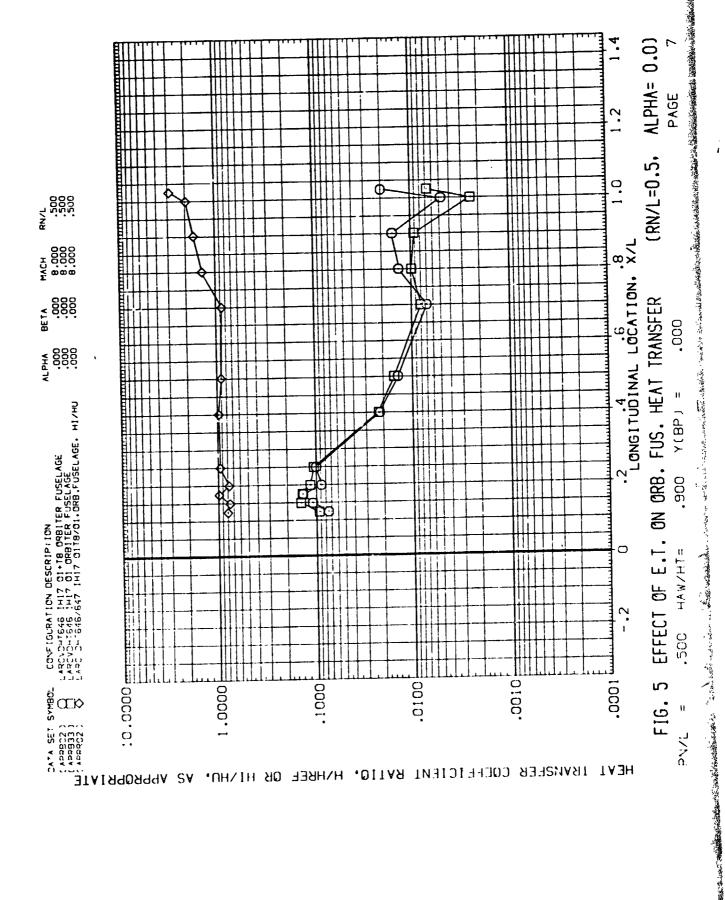
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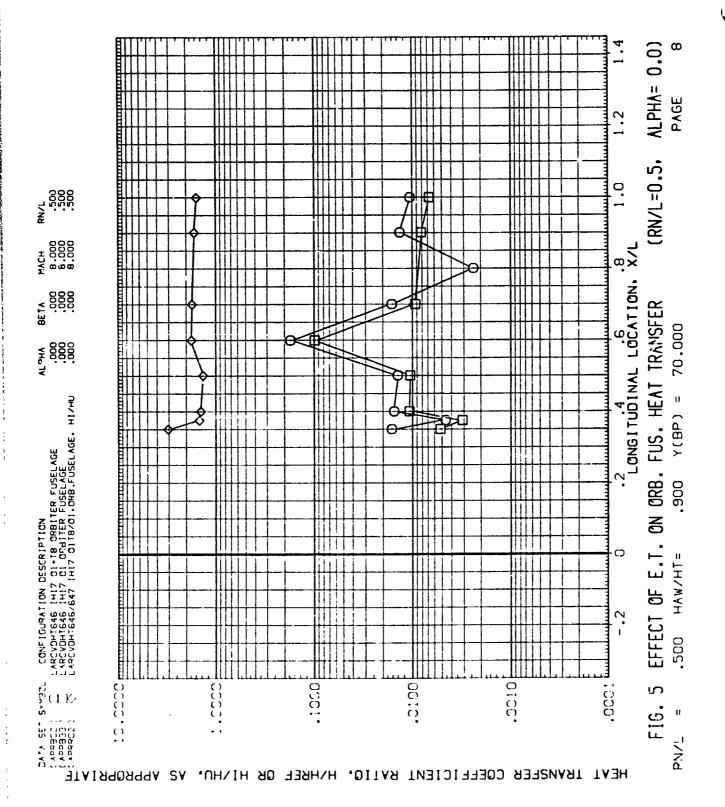


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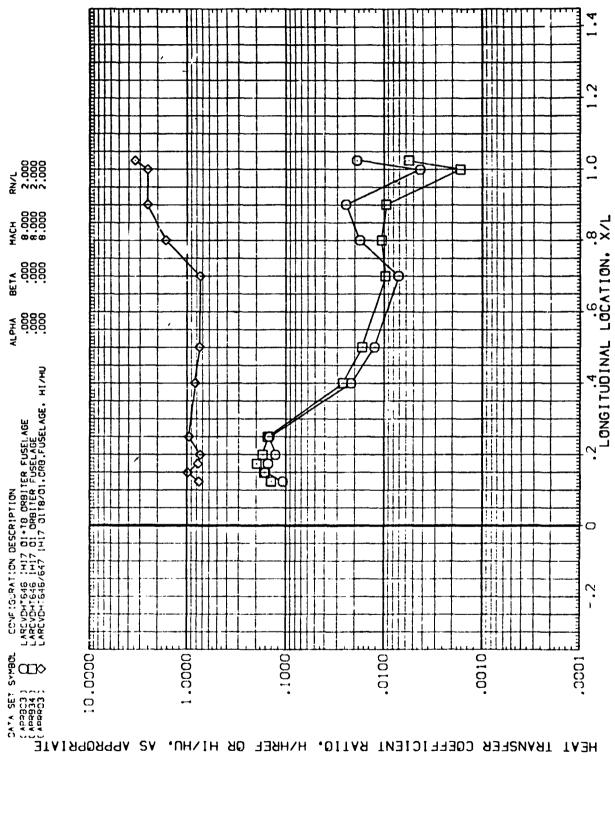


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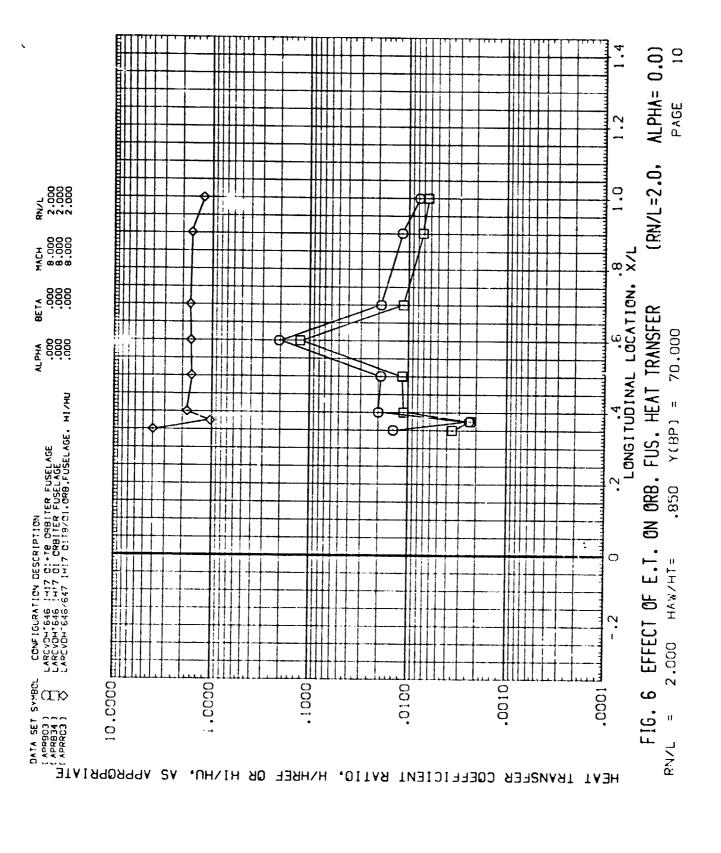




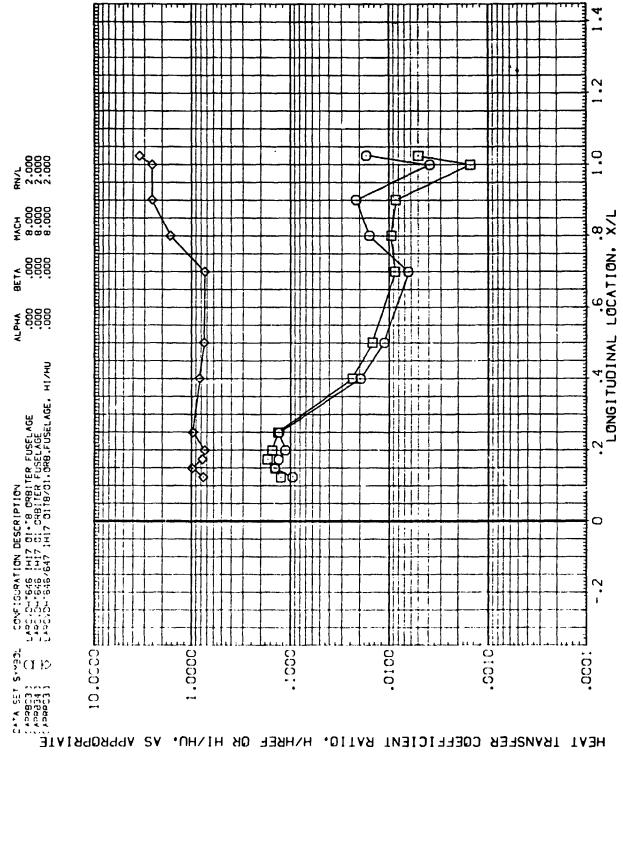
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(RN/L=2.0, ALPHA= 0.0) PAGE FIG. 6 EFFECT OF E.T. ON ORB. FUS. HEAT TRANSFER .000 .850 HAWAHTH



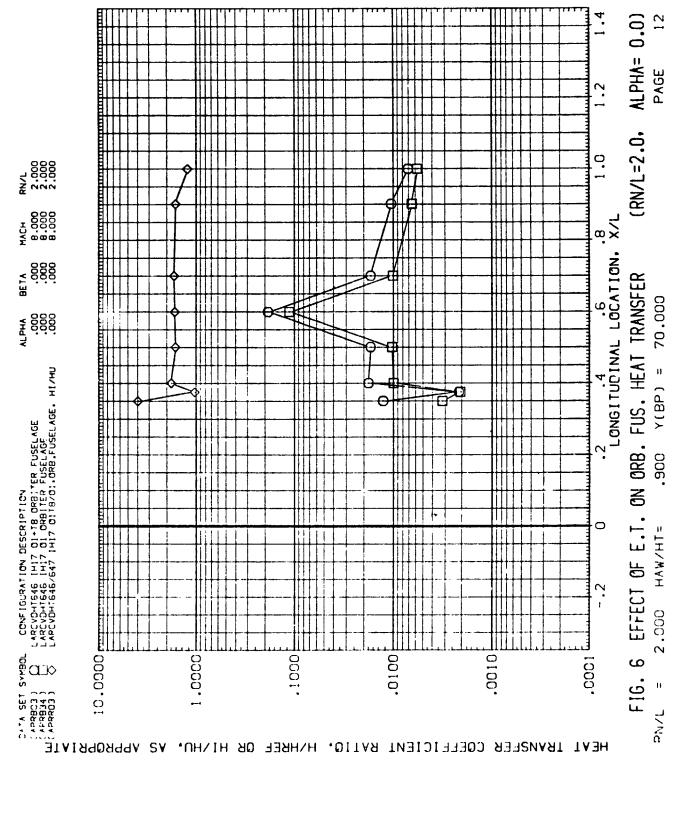
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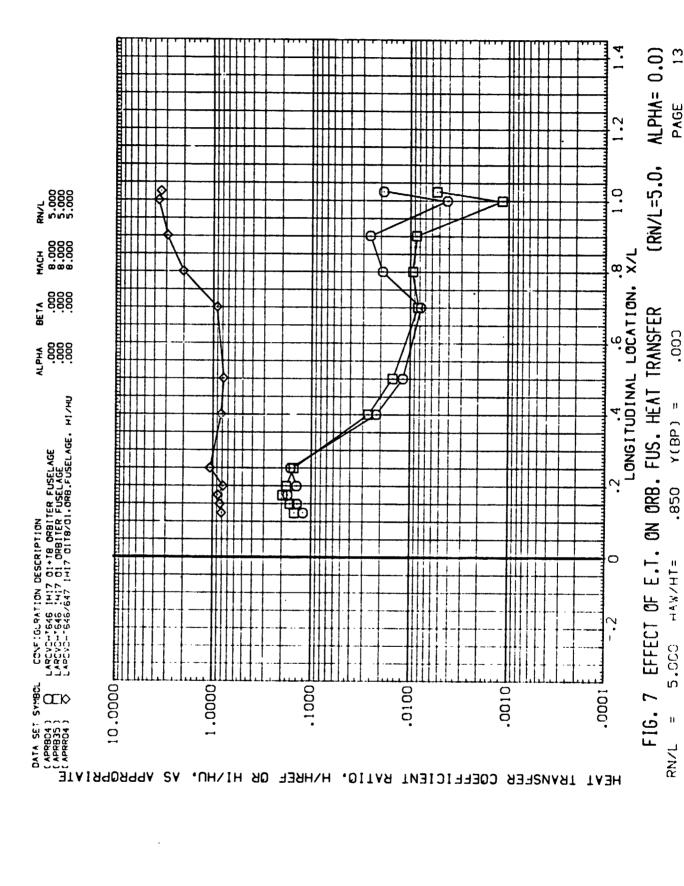
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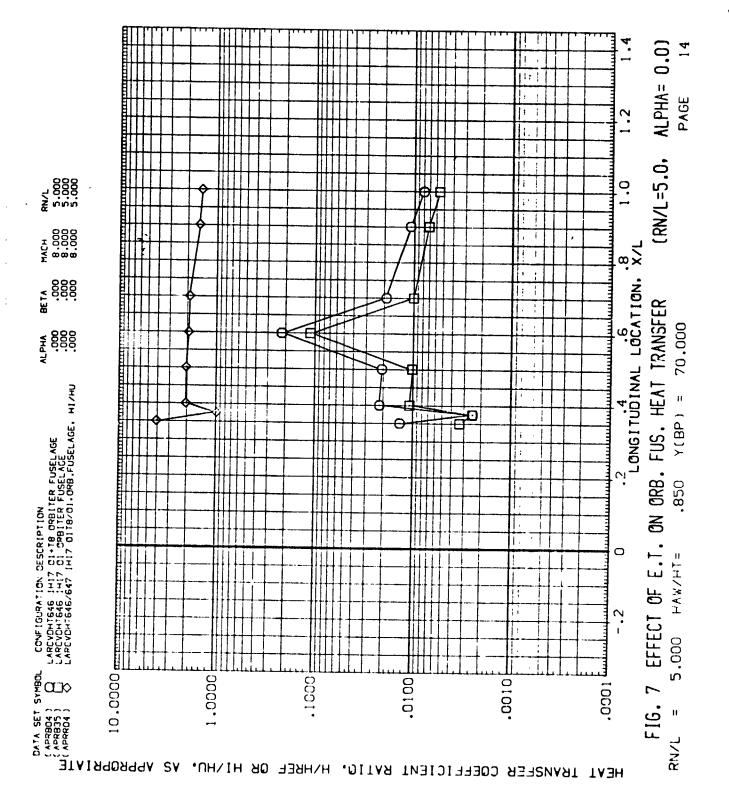
ALPHA= 0.0) PAGE (RN/L=2.0, EFFECT OF E.I. ON ORB. FUS. HEAT TRANSFER Н Y(BP) .900 HAW/HT= 2.000 FIG. 6

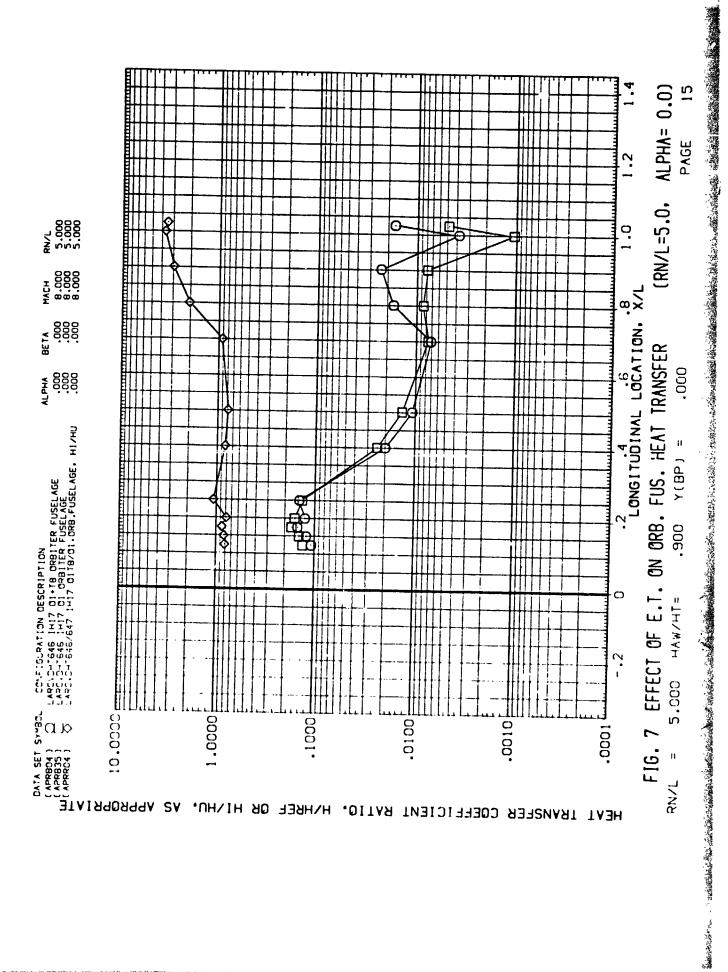
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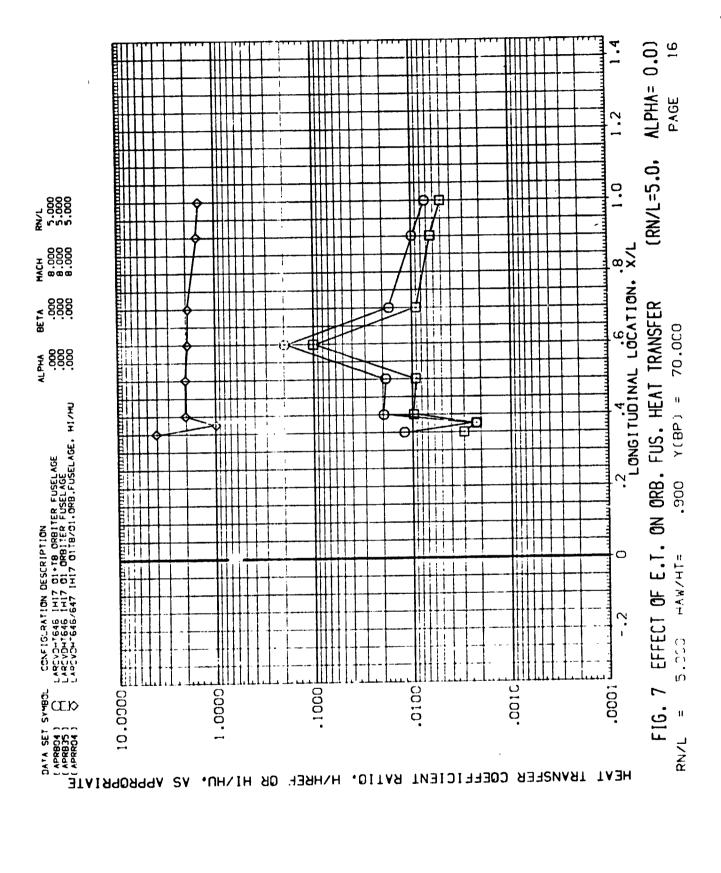
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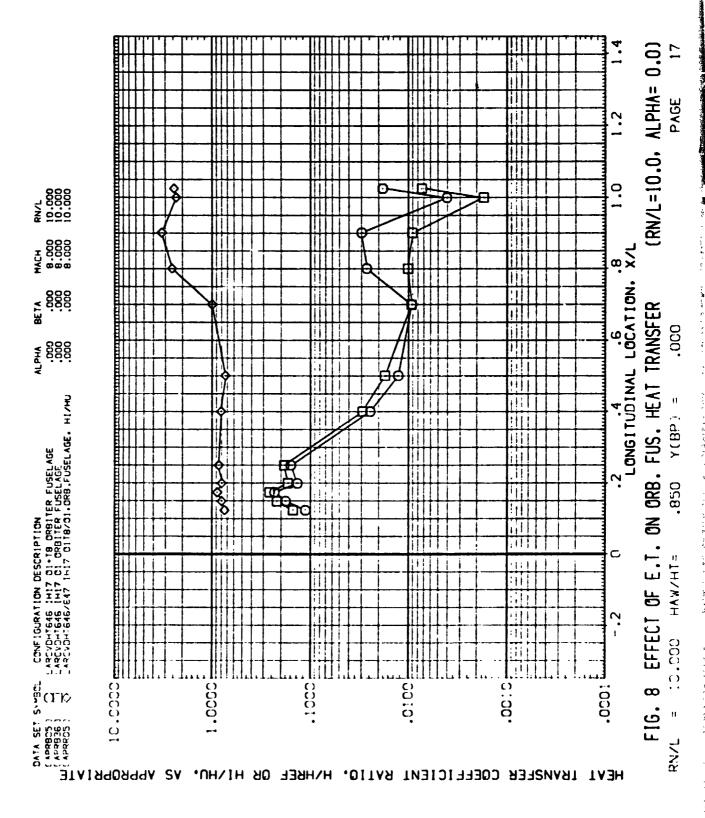




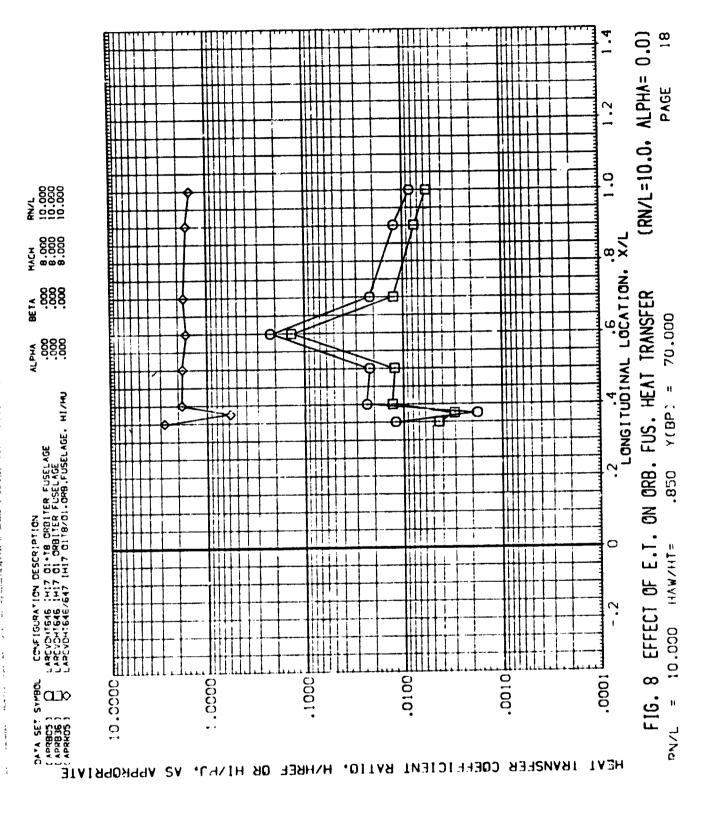
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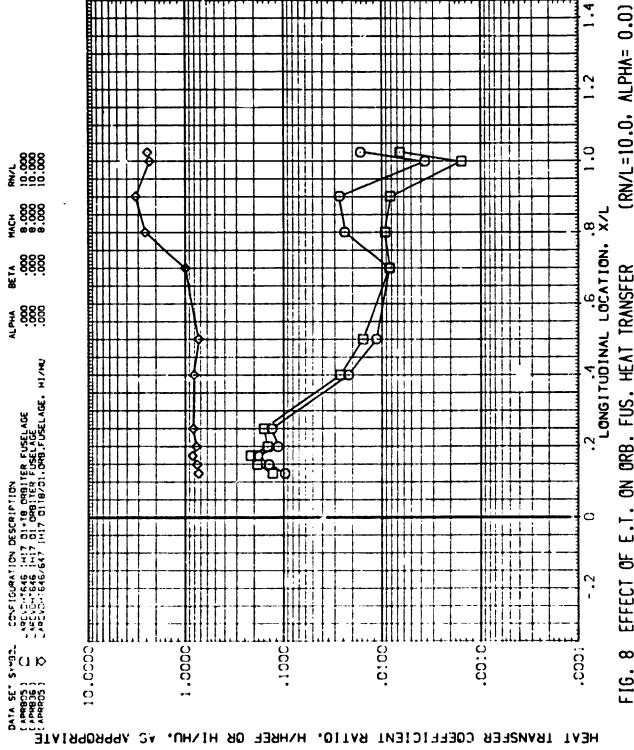
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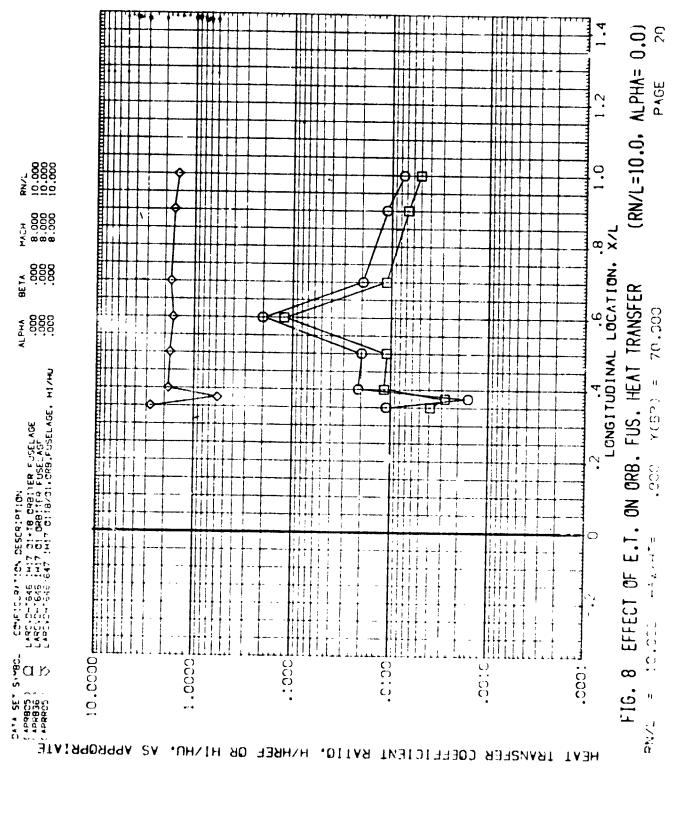
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(RN/L=10.0, ALPHA= PAGE EFFECT OF E.I. ON ORB. FUS. HEAT TRANSFER ς) FIG. 8 RNZL

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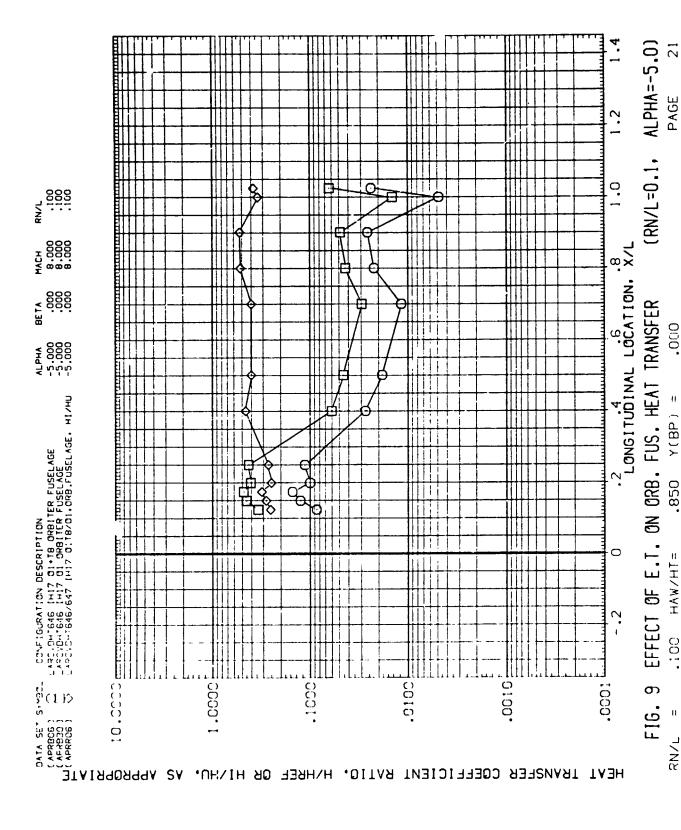
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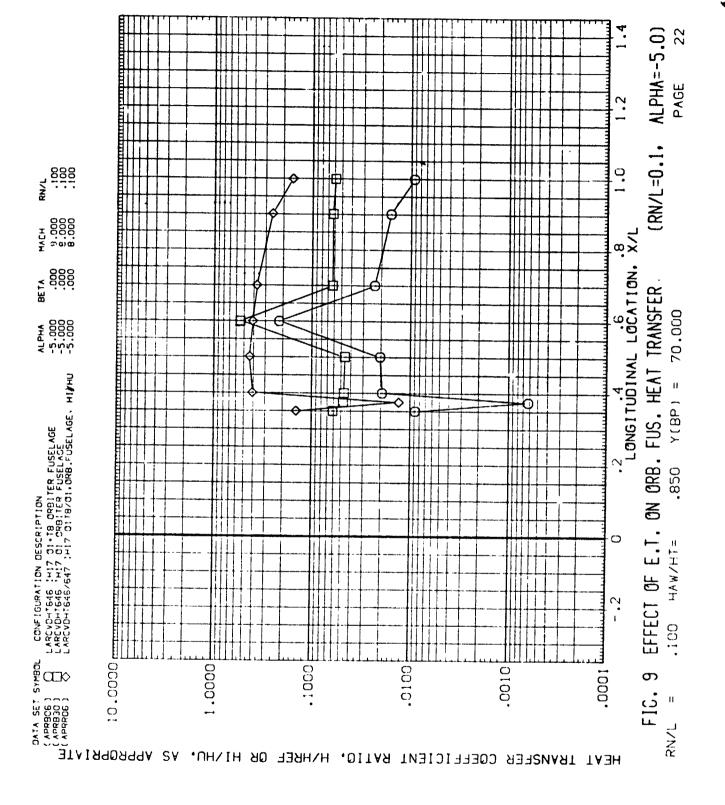
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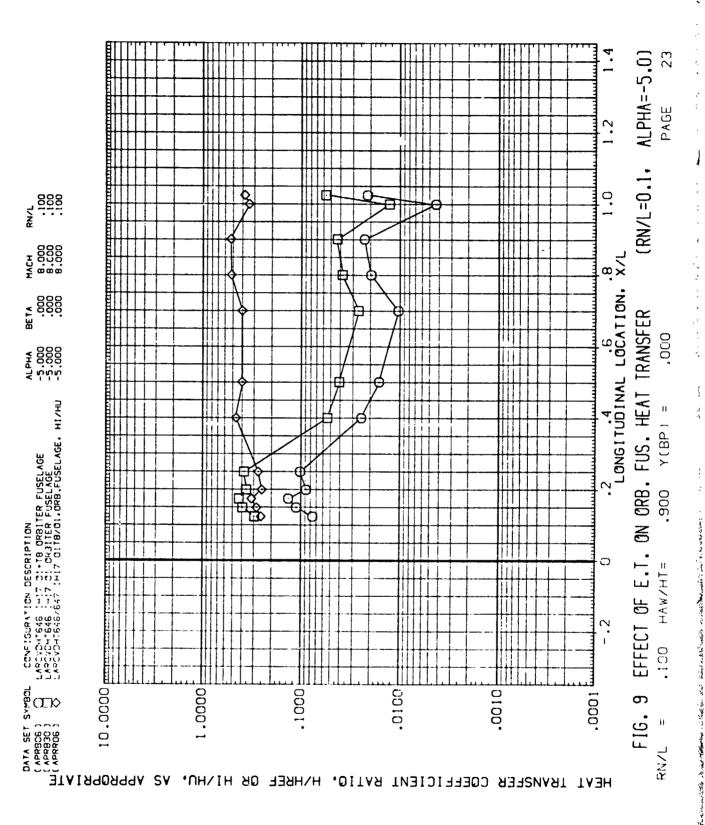
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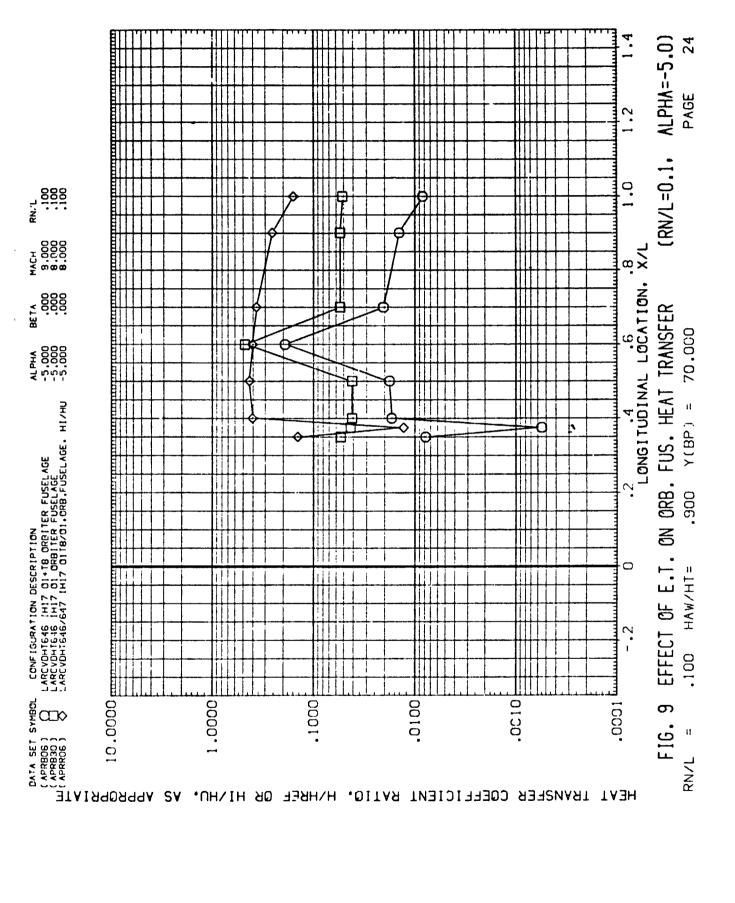
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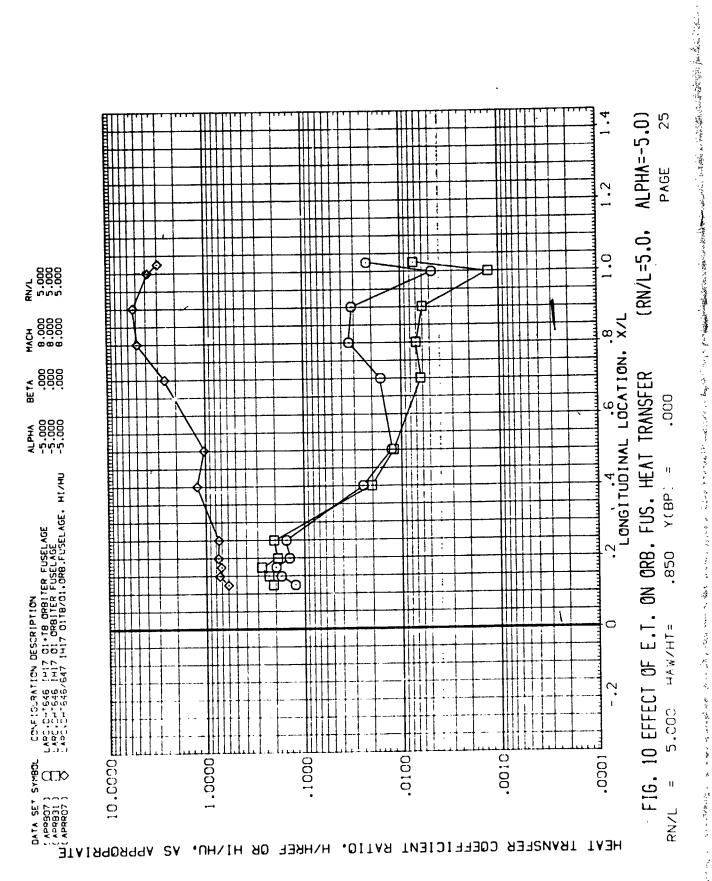




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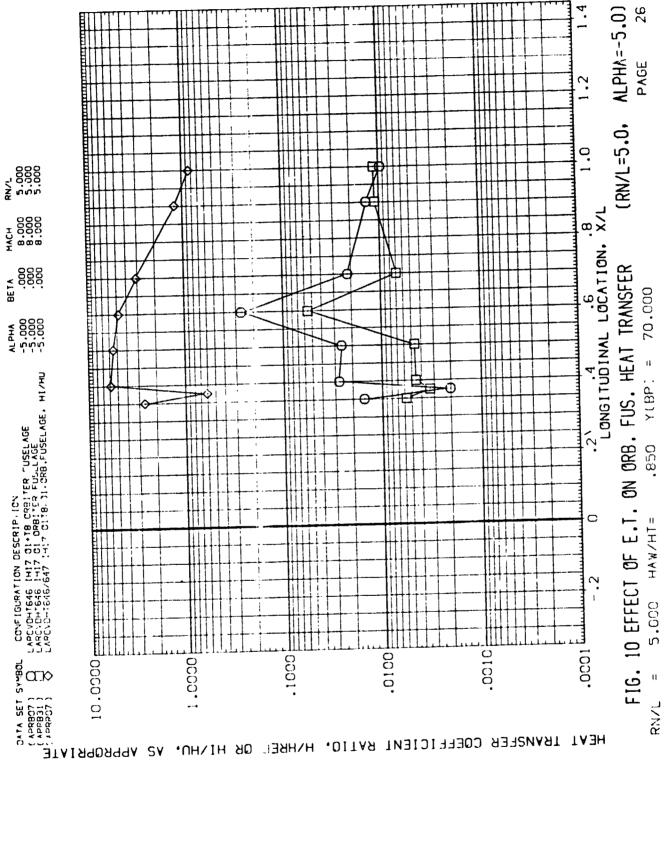


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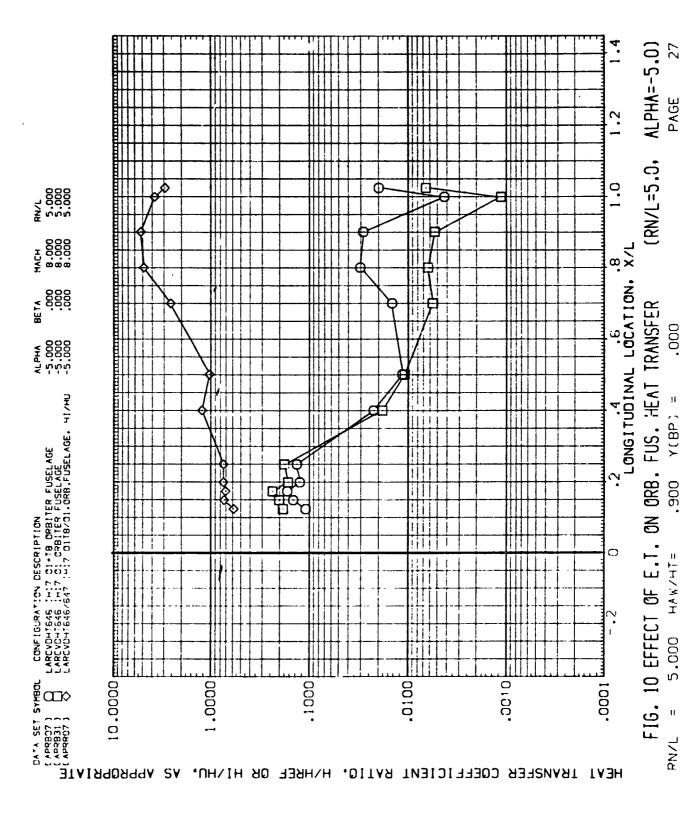
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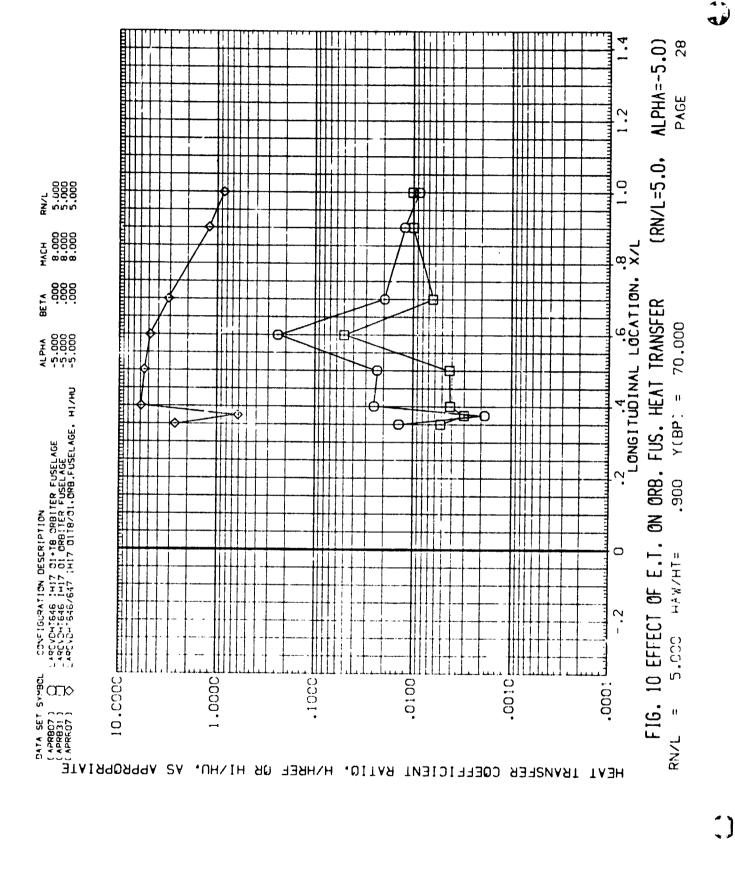
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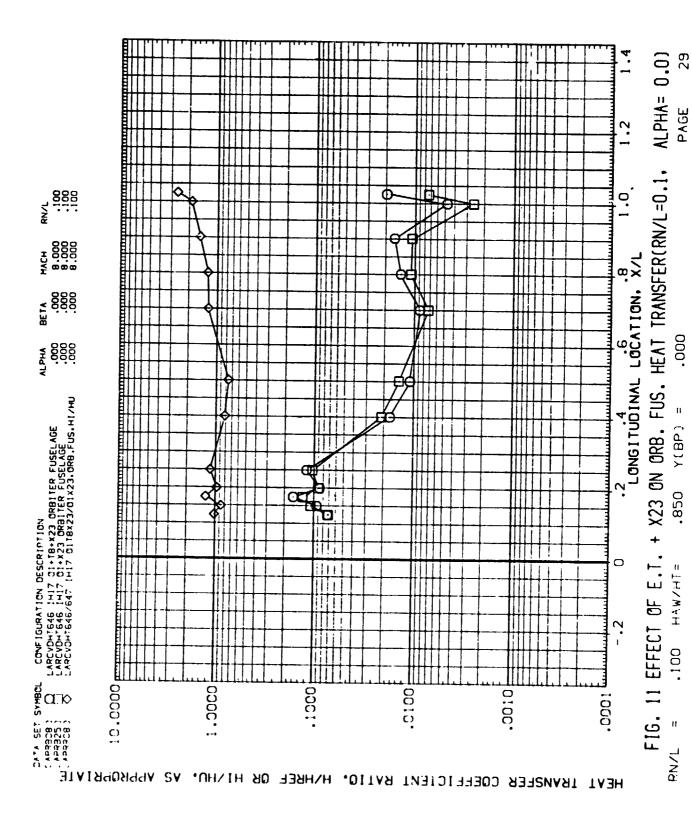


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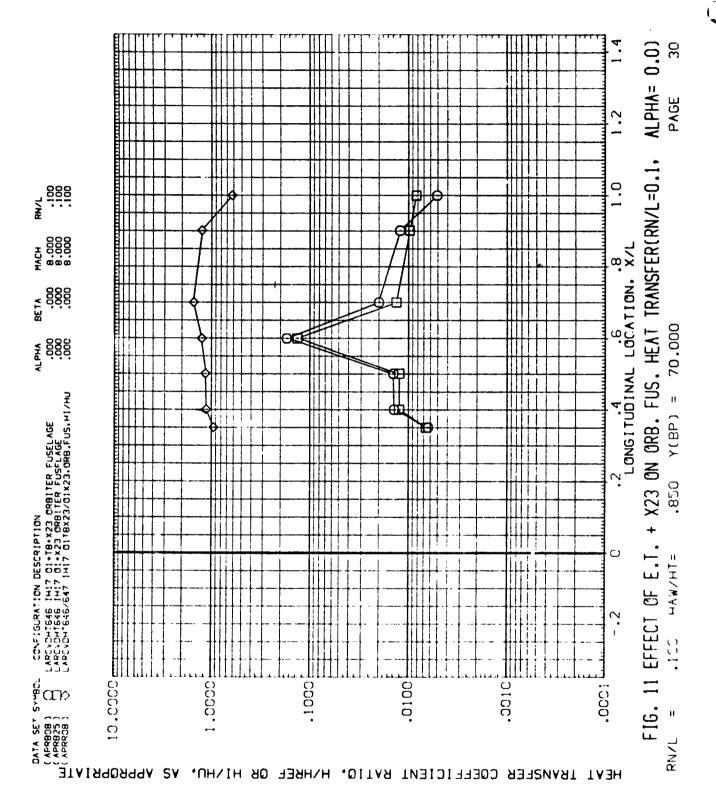




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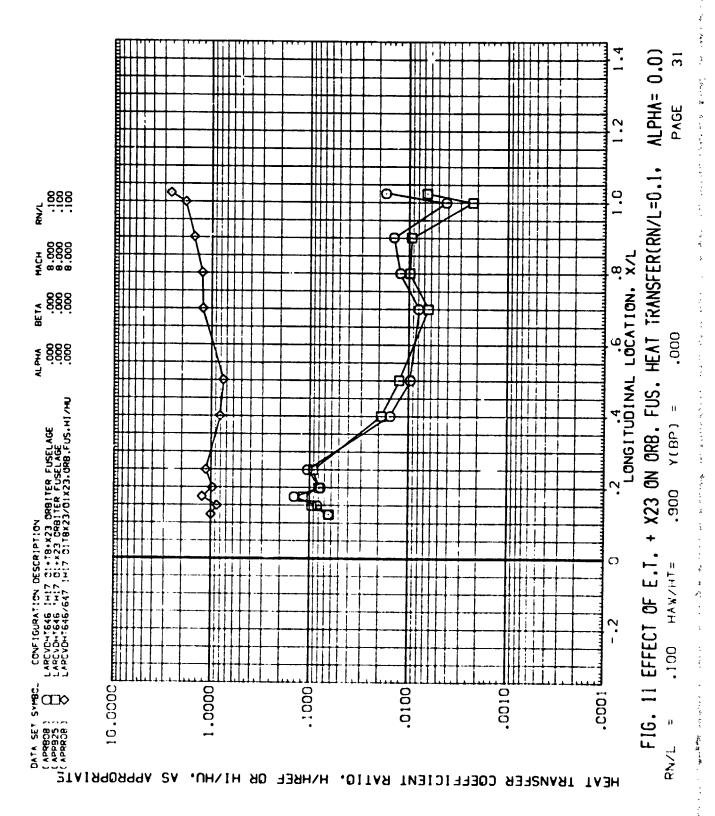
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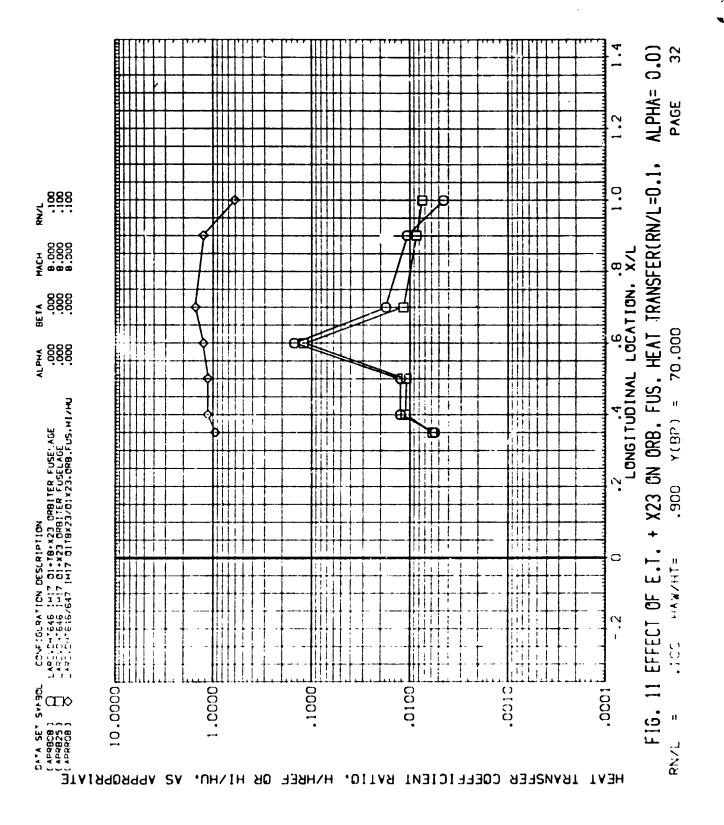
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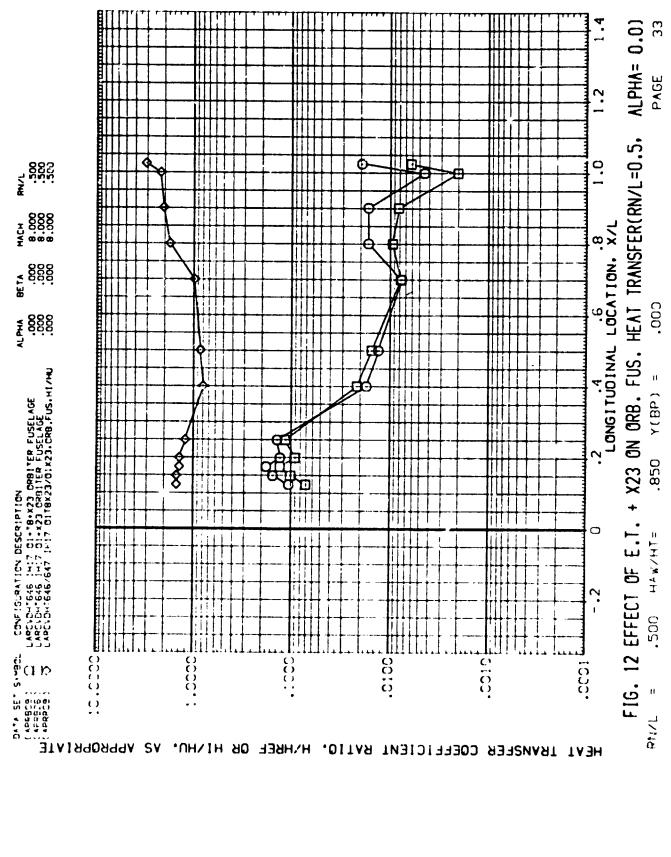
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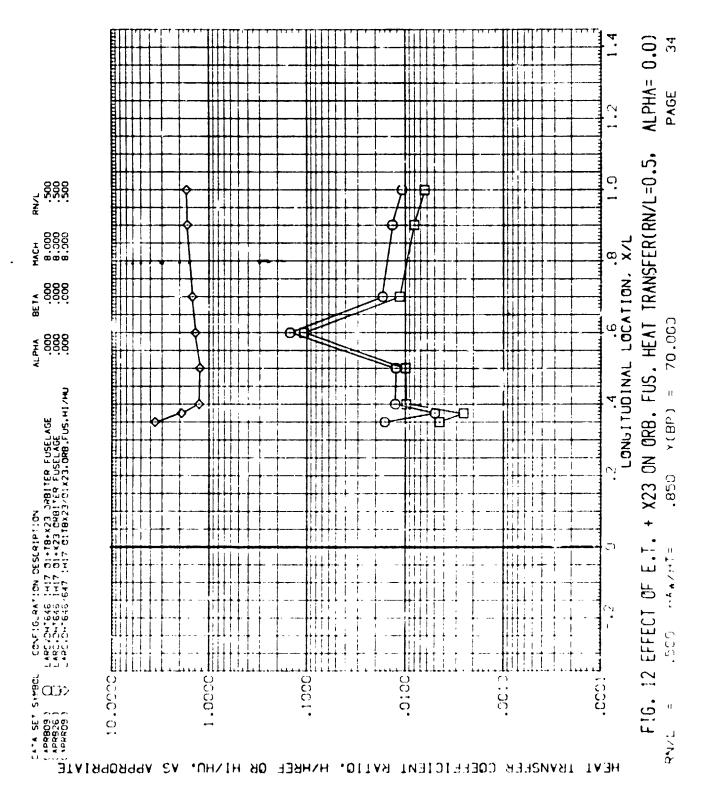


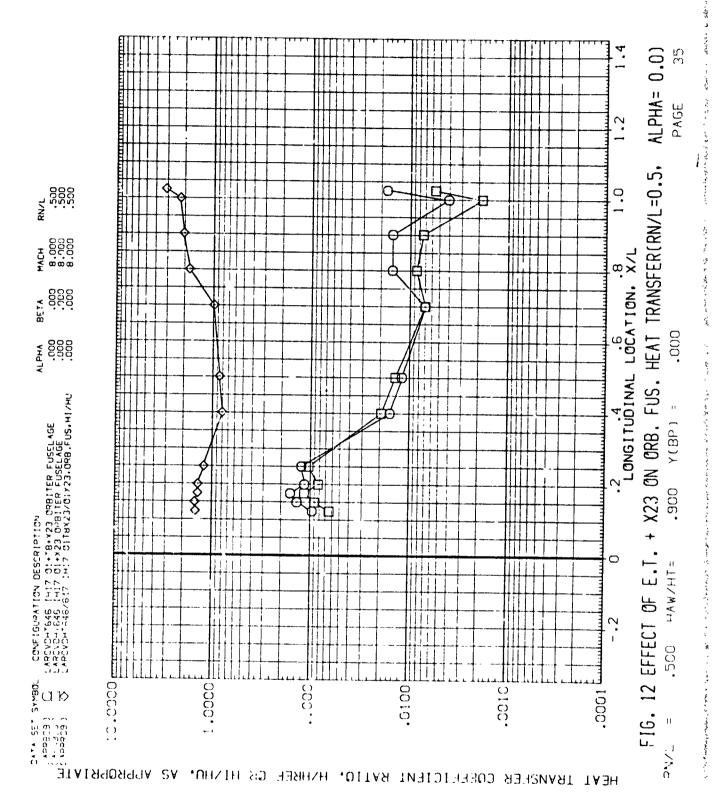
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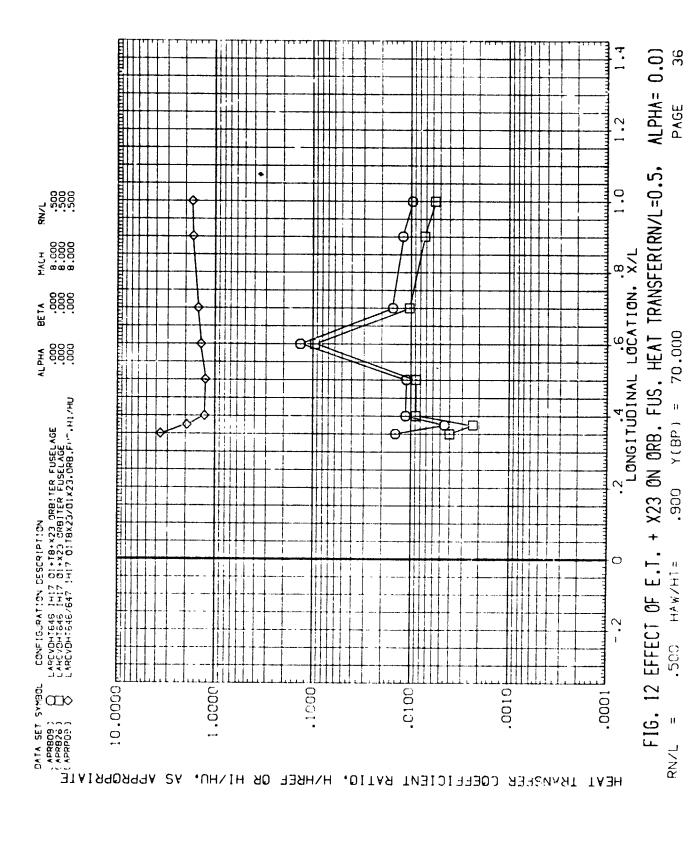


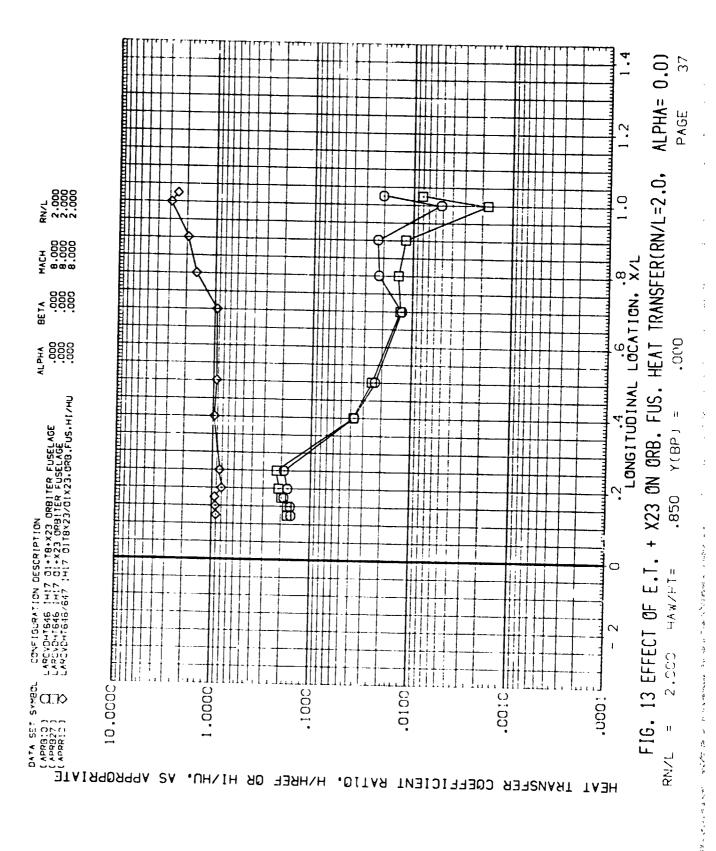


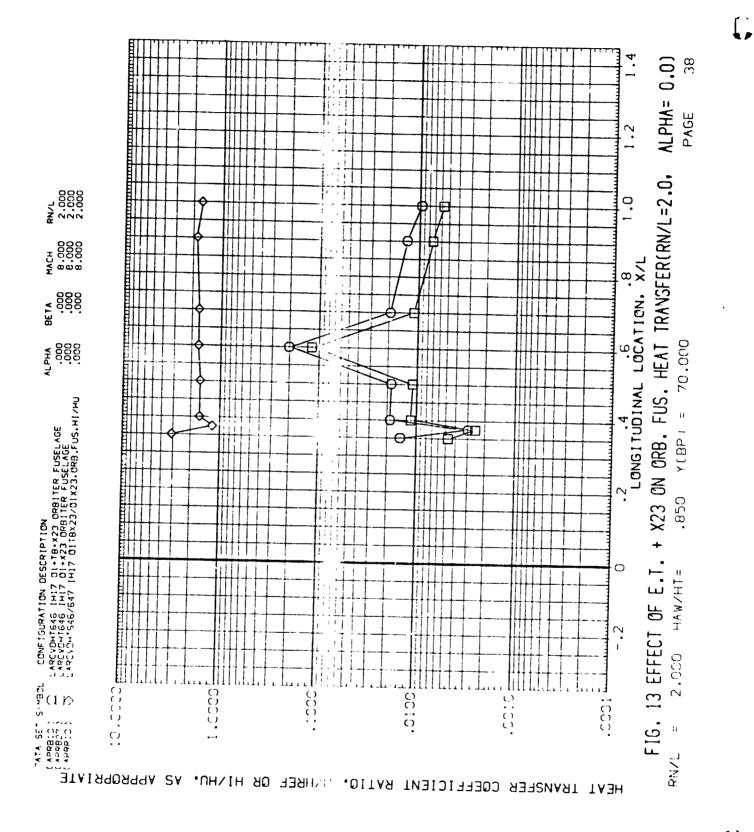


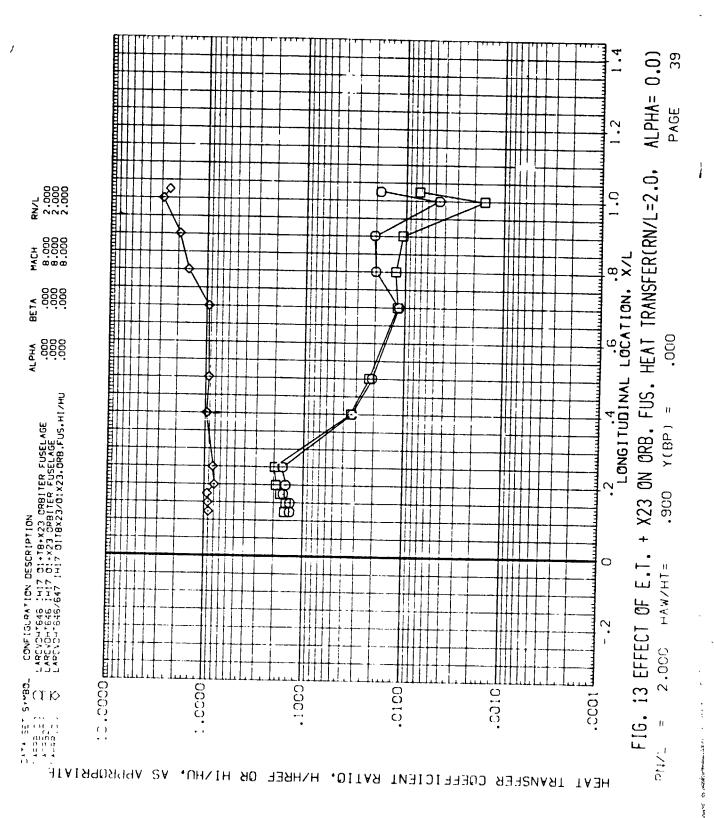
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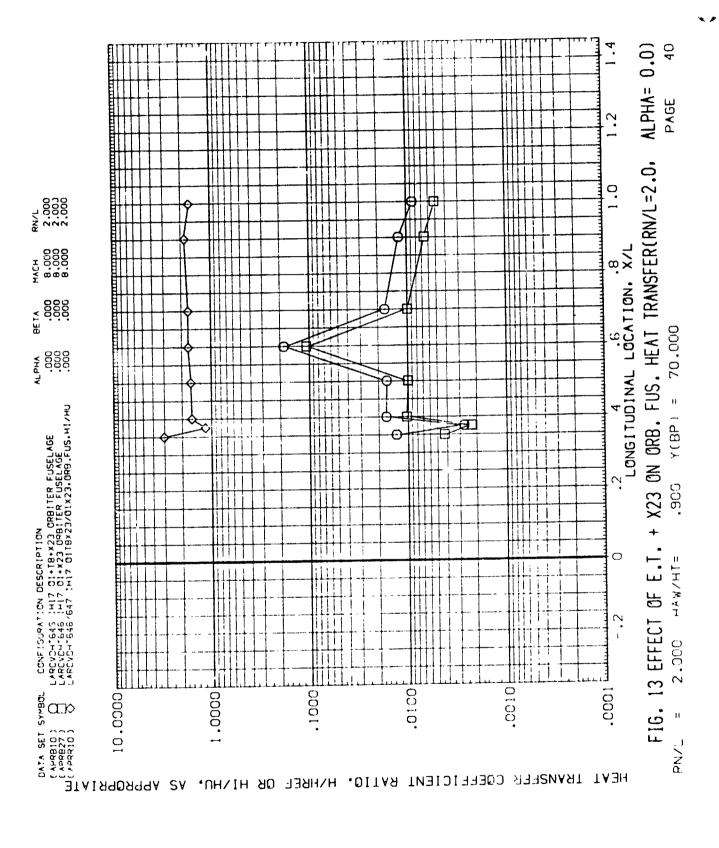
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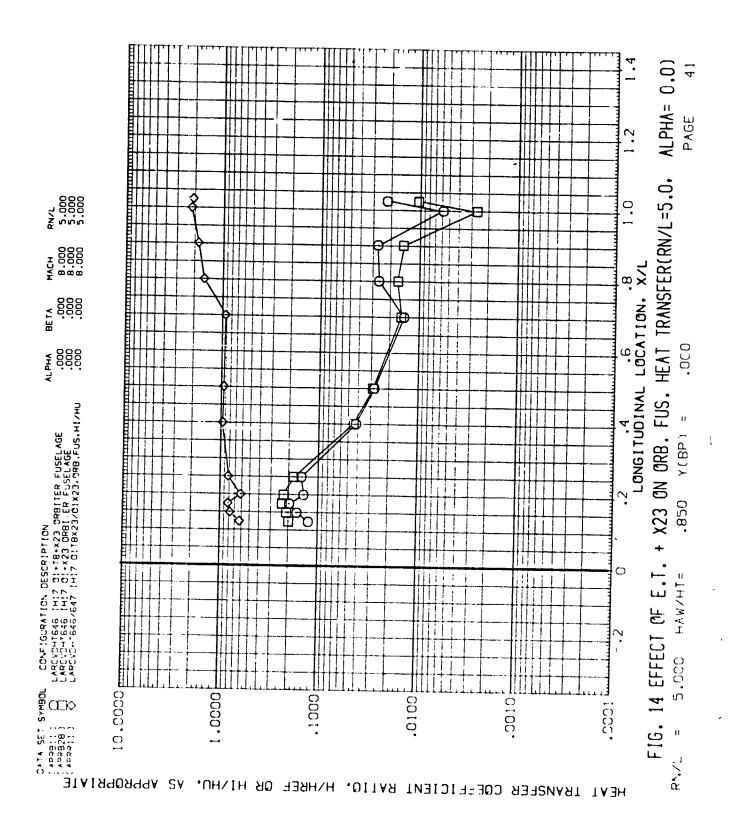


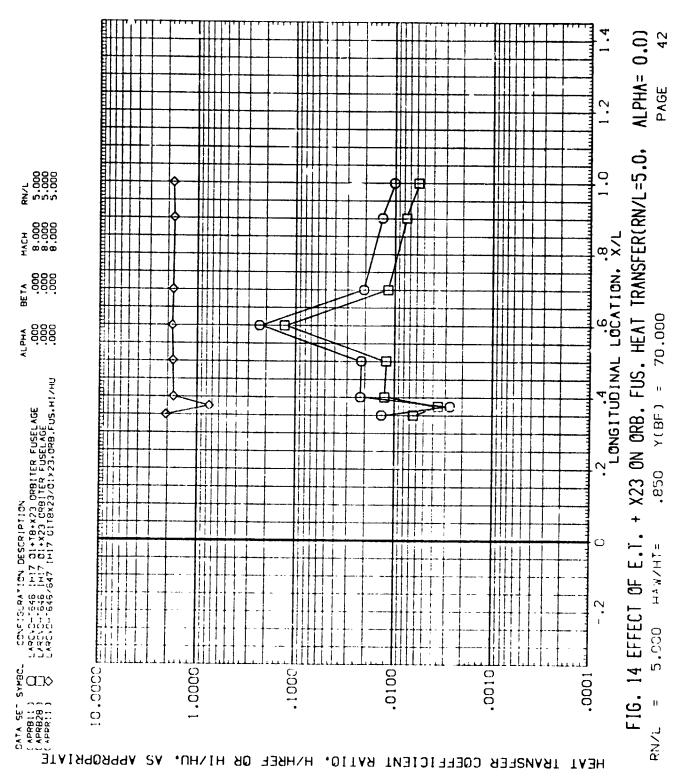




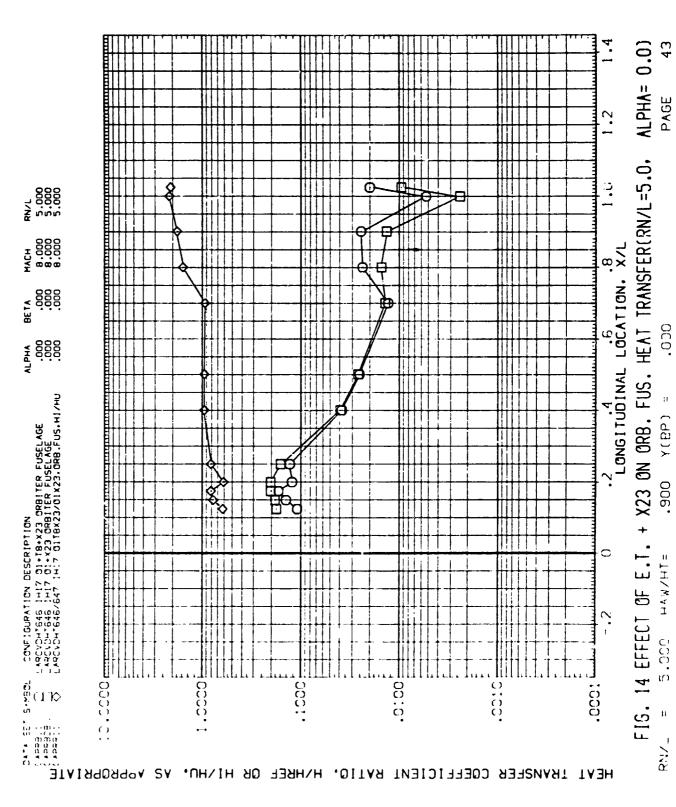




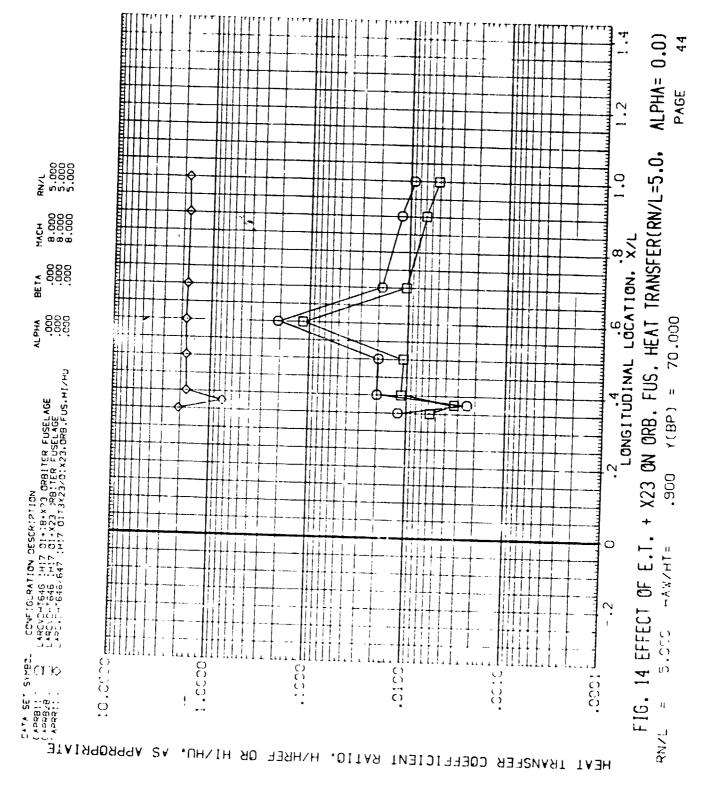


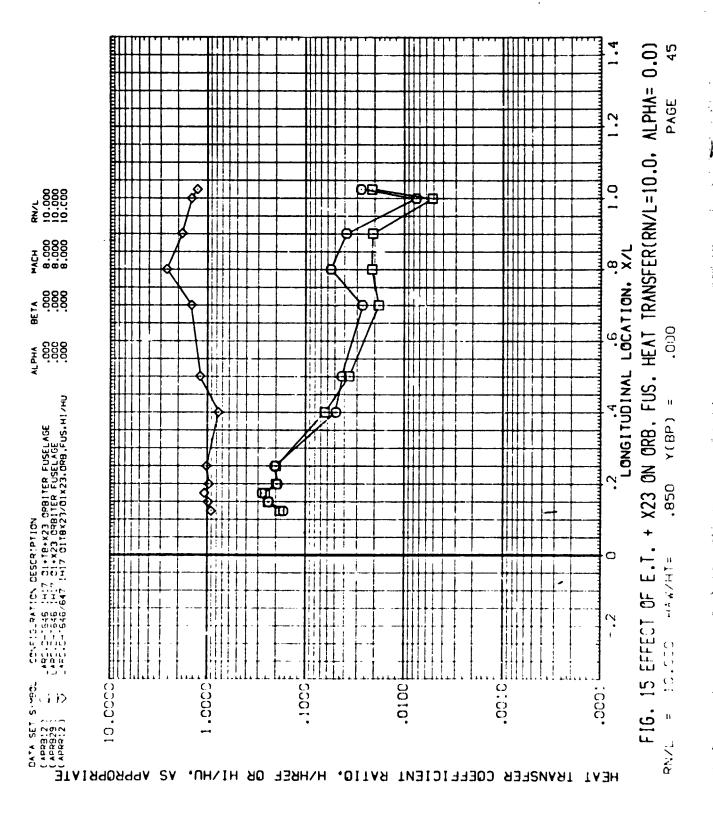


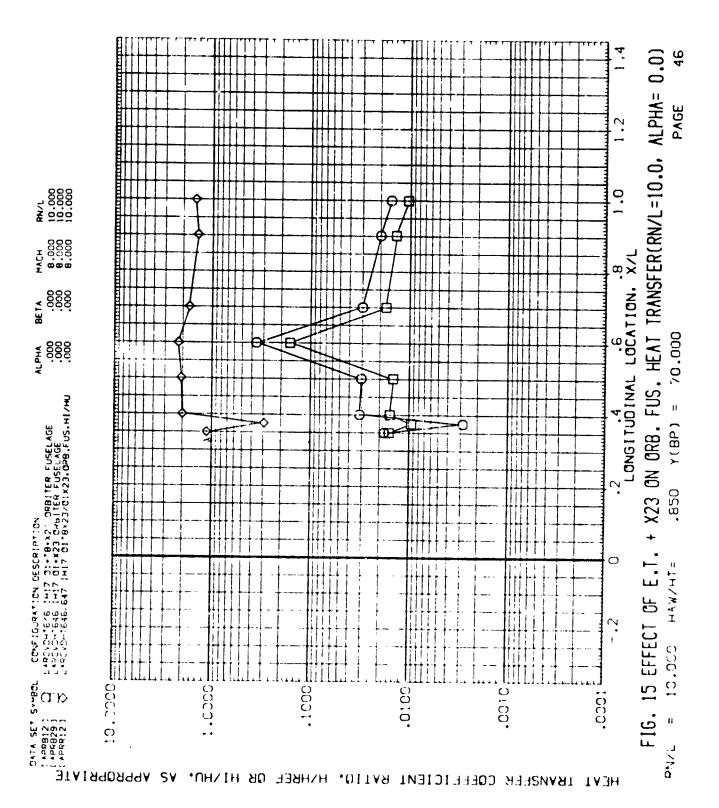
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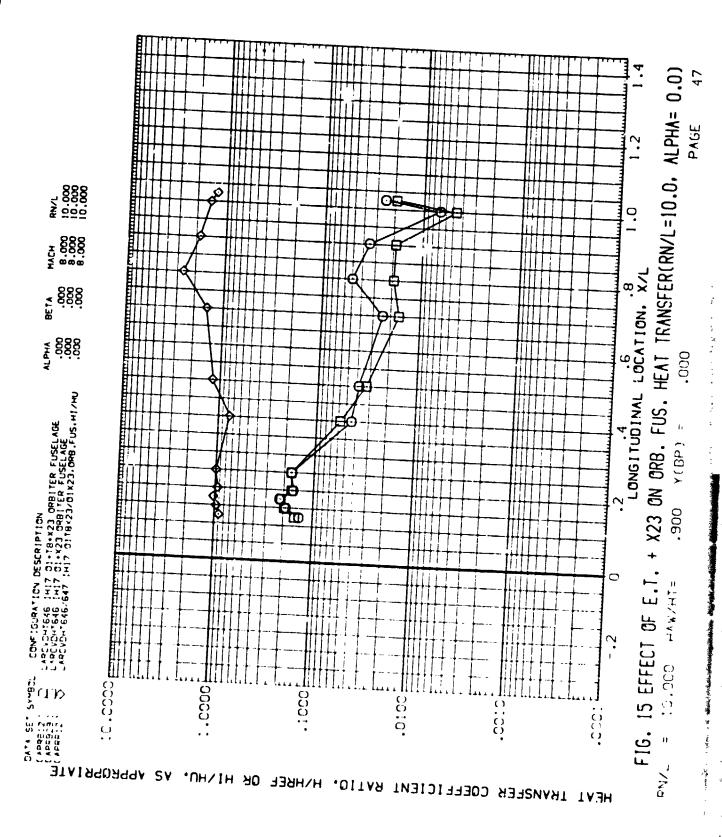


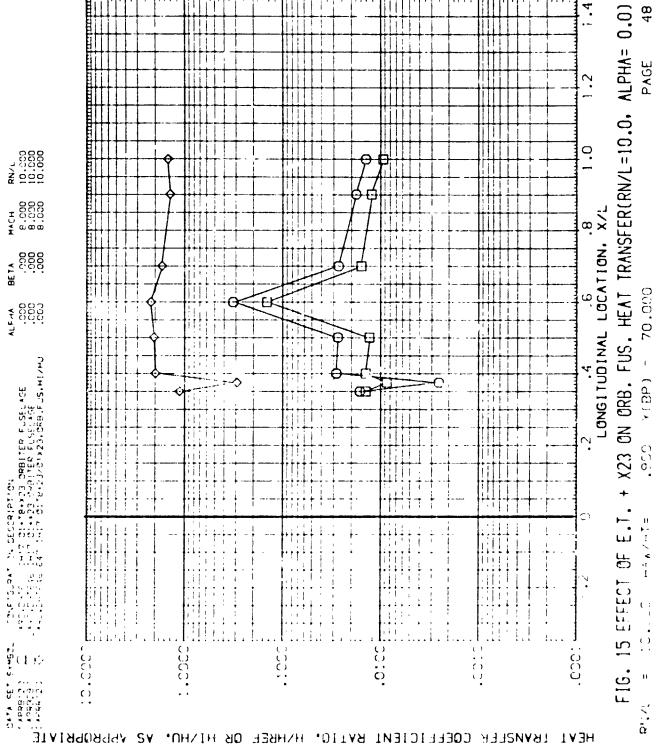
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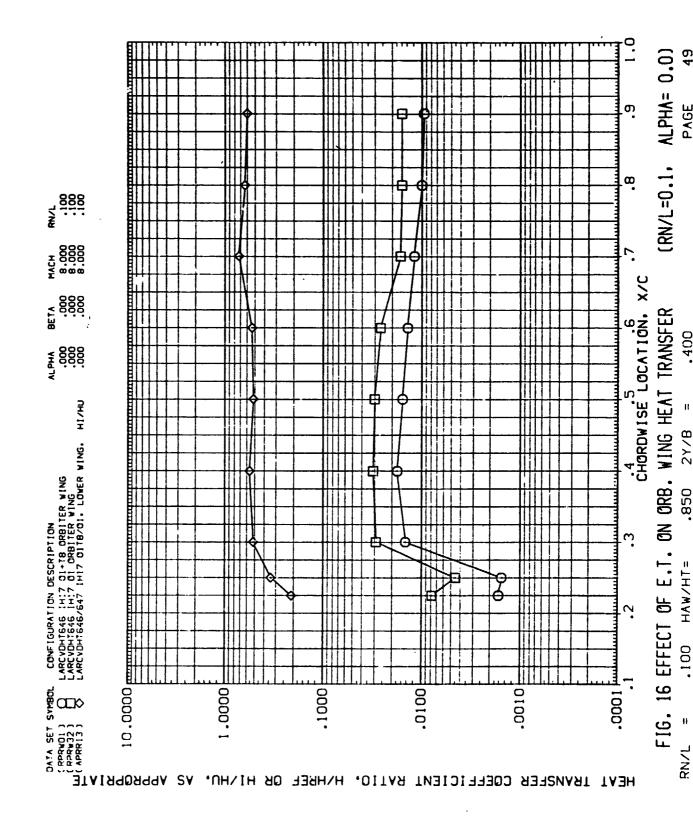




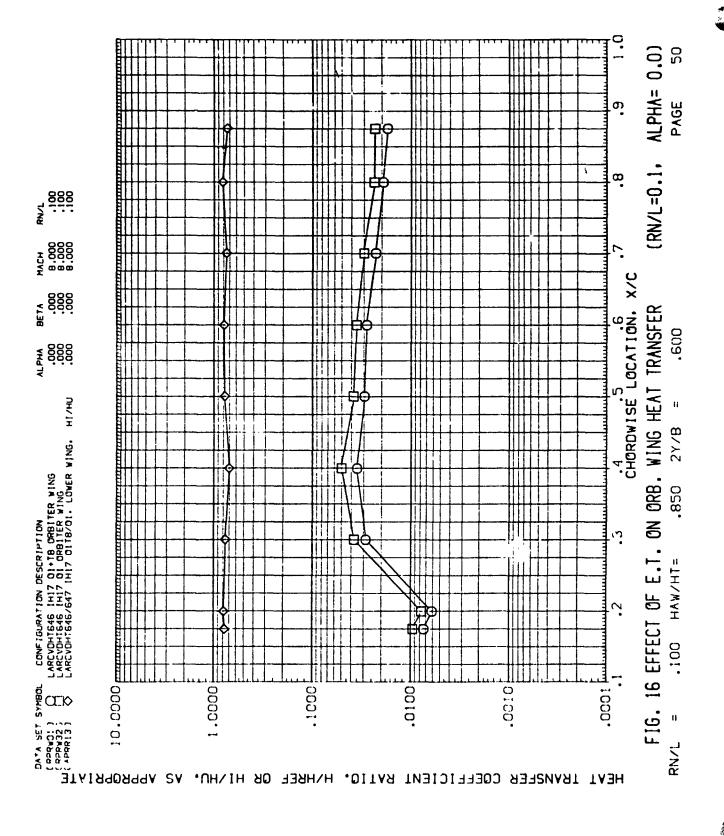


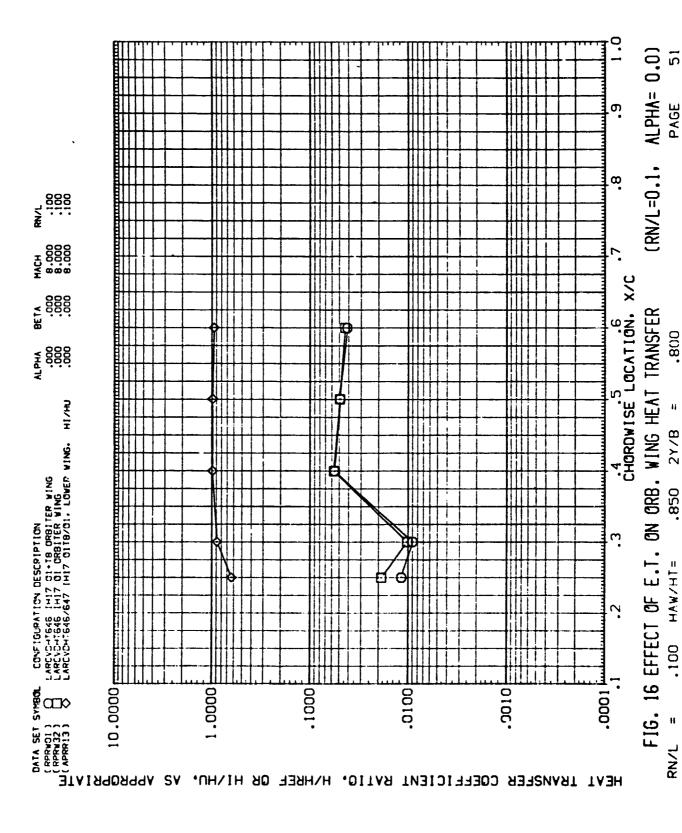


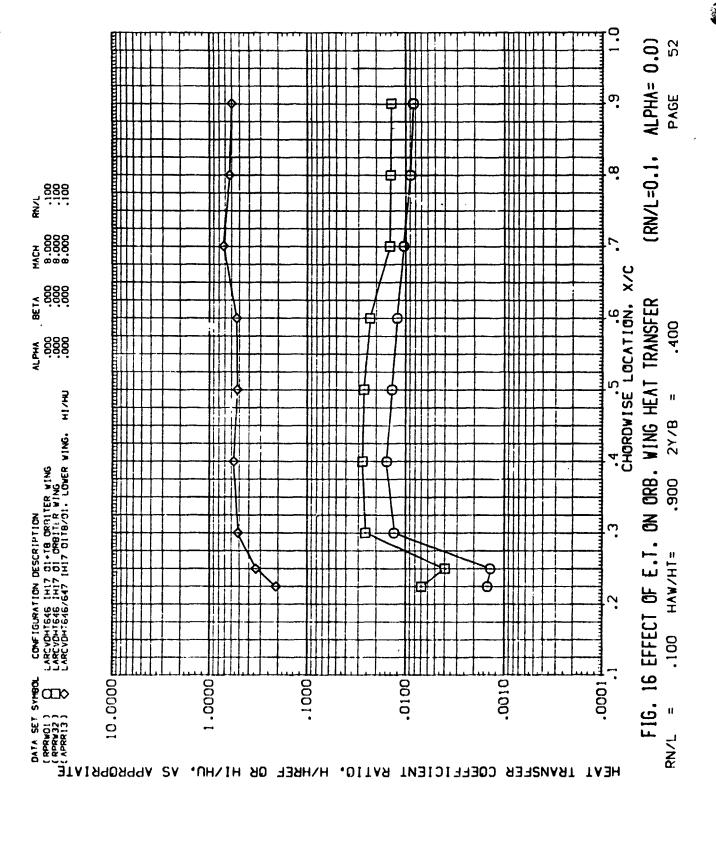




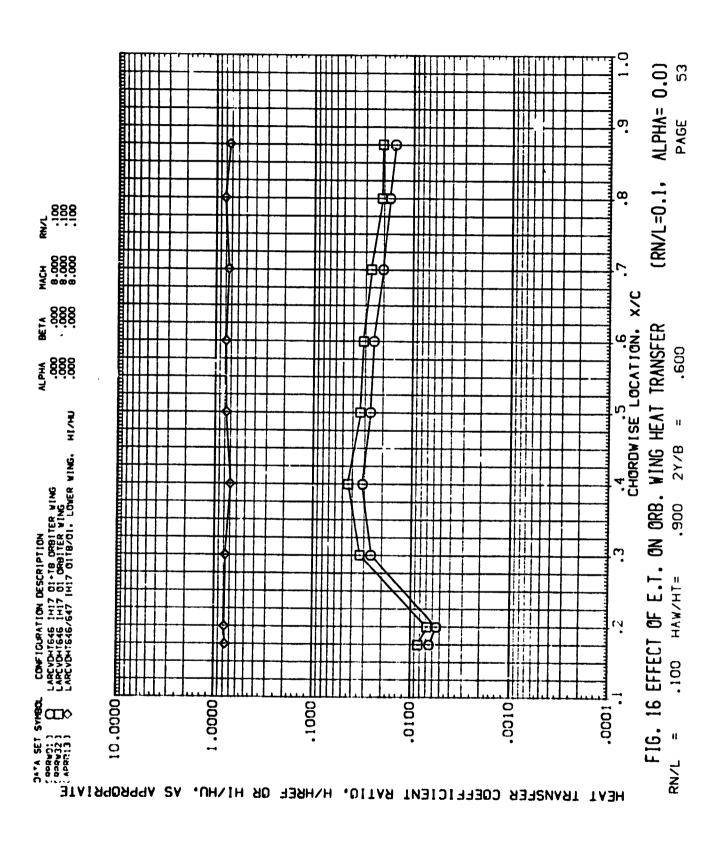
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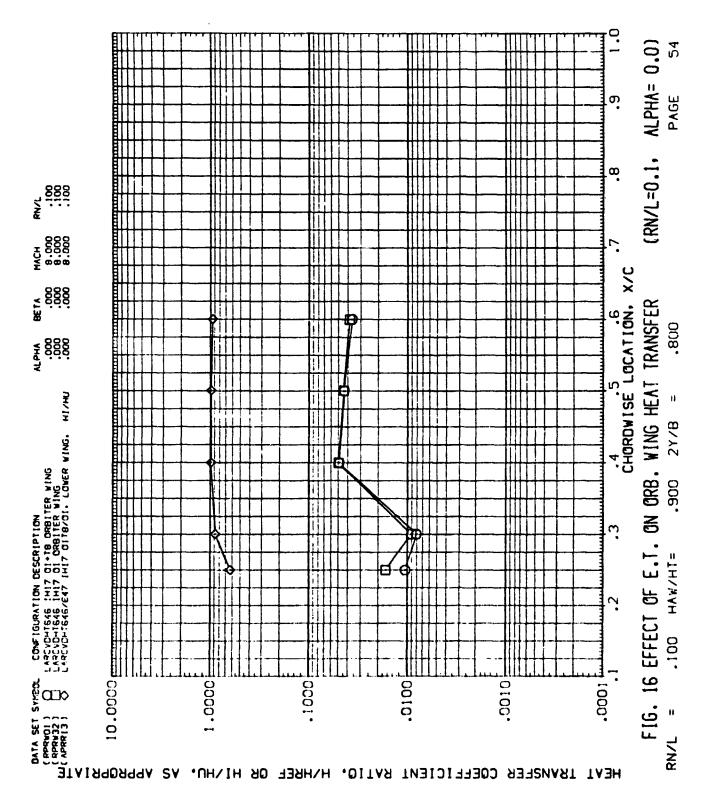




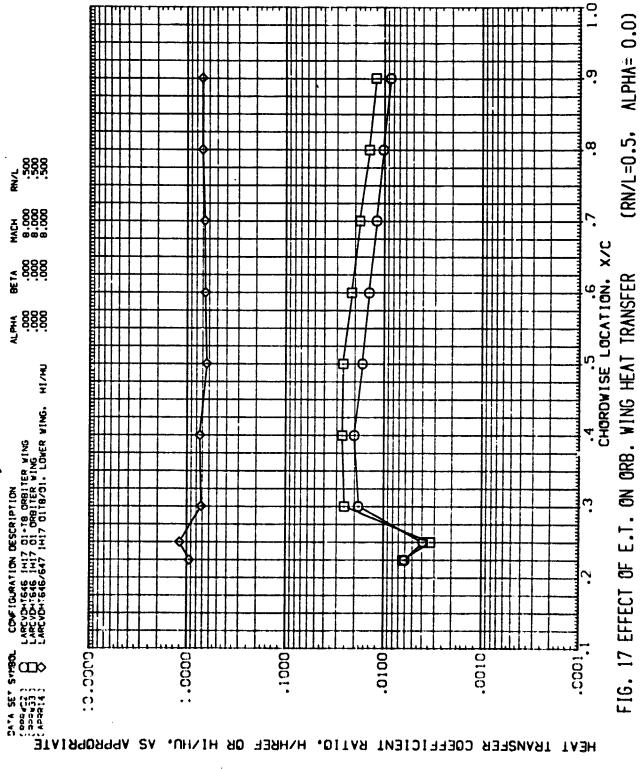


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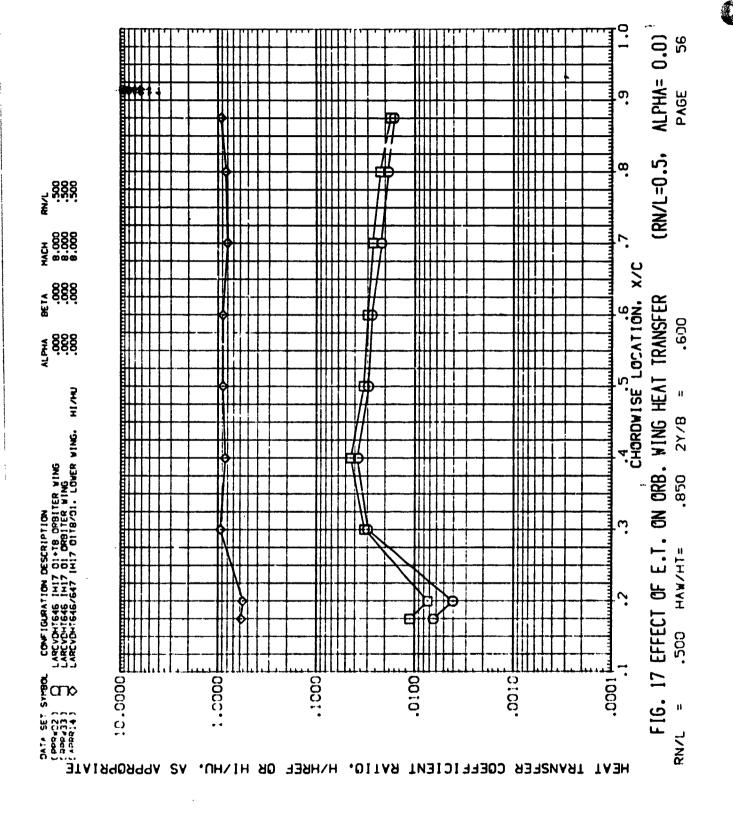


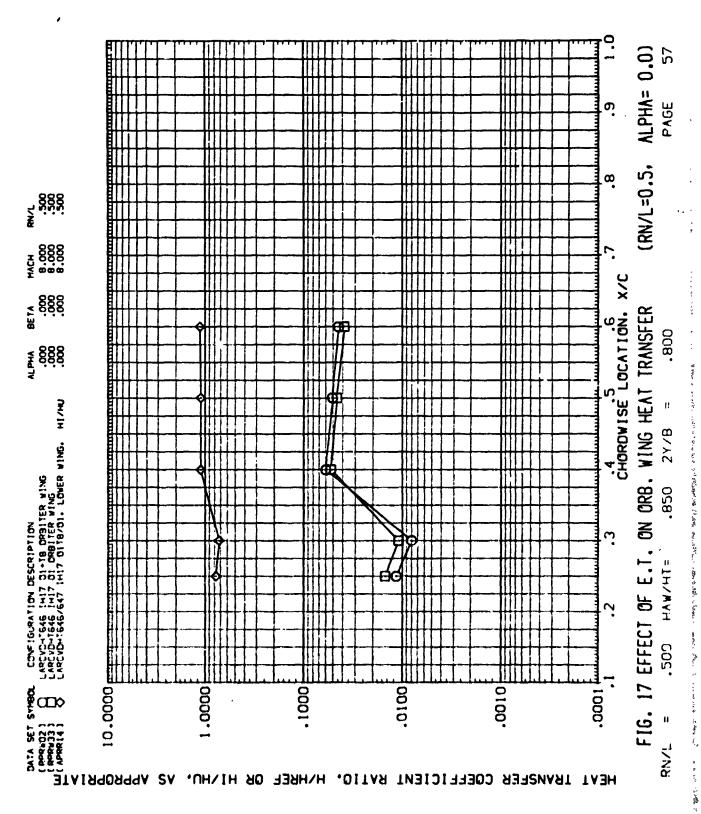


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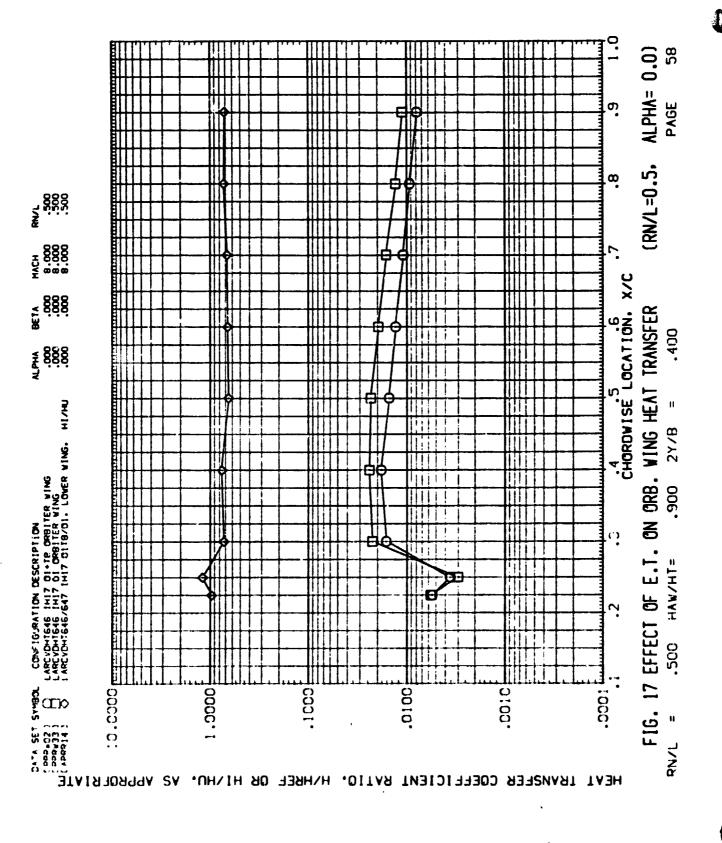
FAGE (RN/L=0.5, FIG. 17 EFFECT OF E.T. ON ORB. WING HEAT TRANSFER 2Y/B 850 HAW/HT= 500

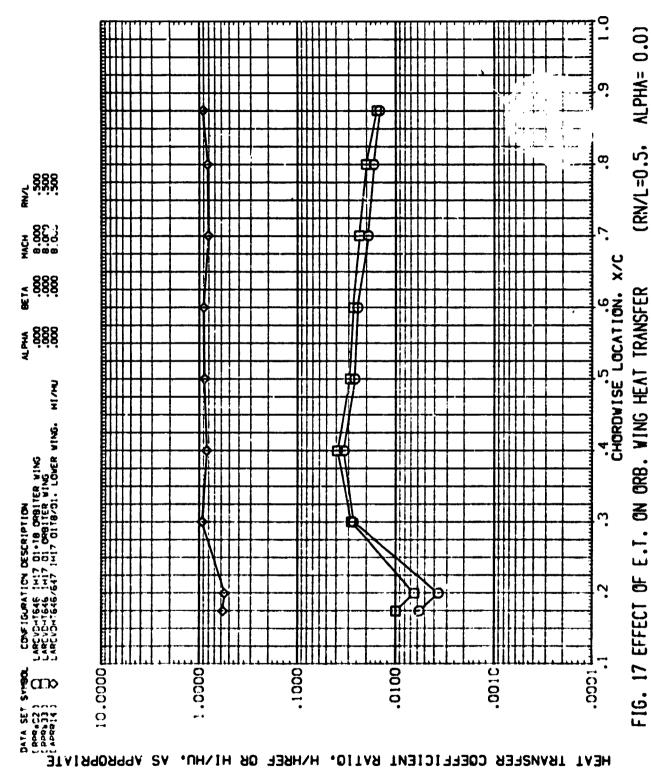




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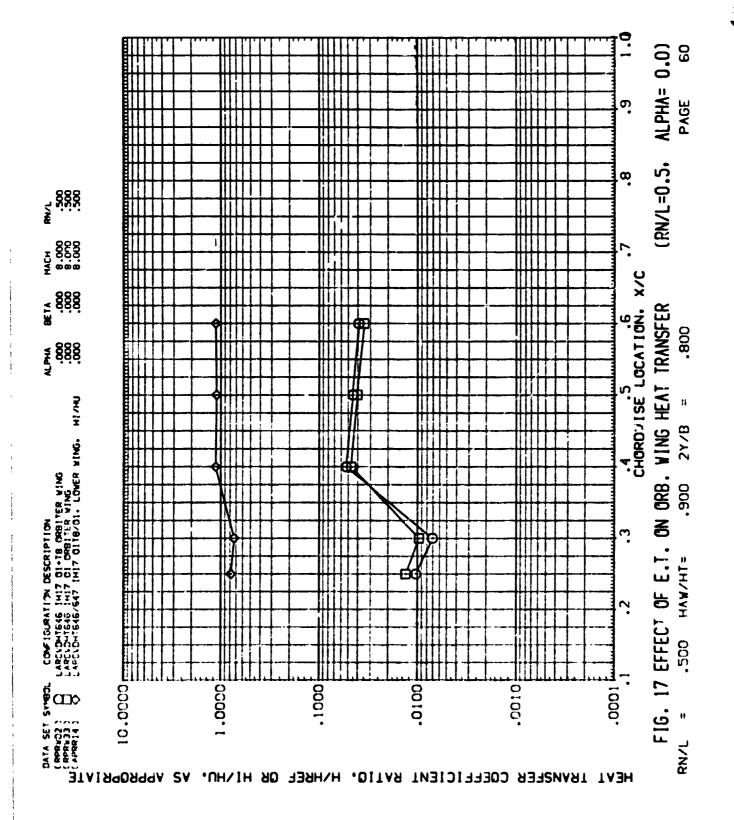
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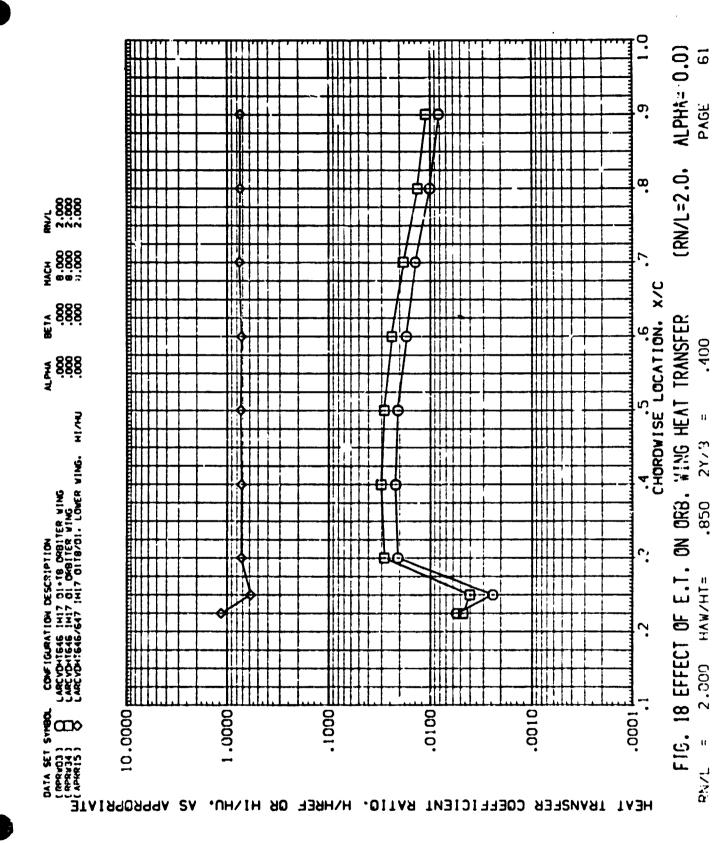


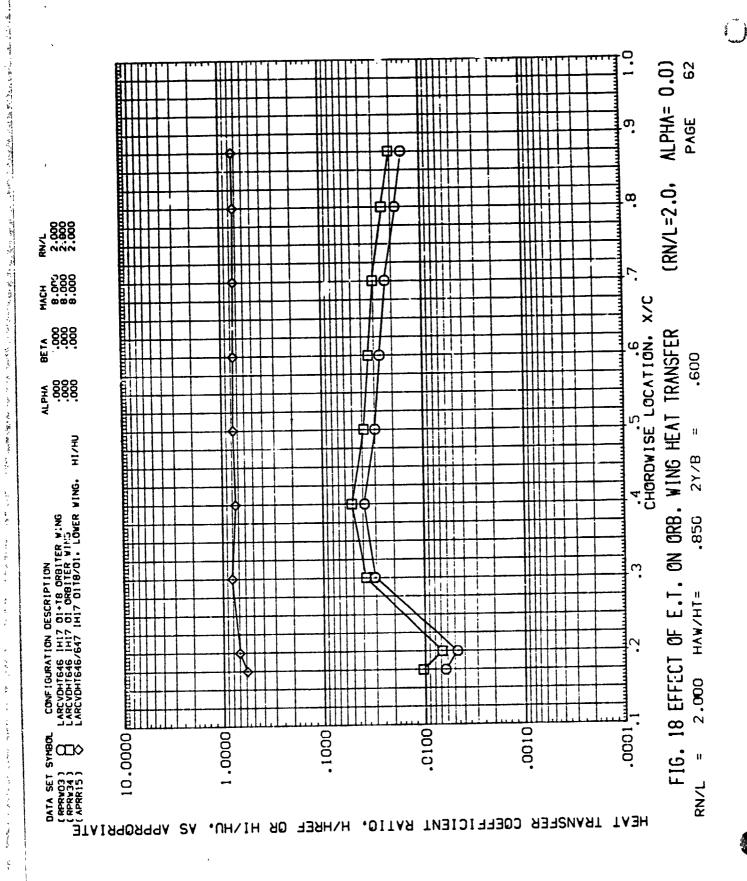


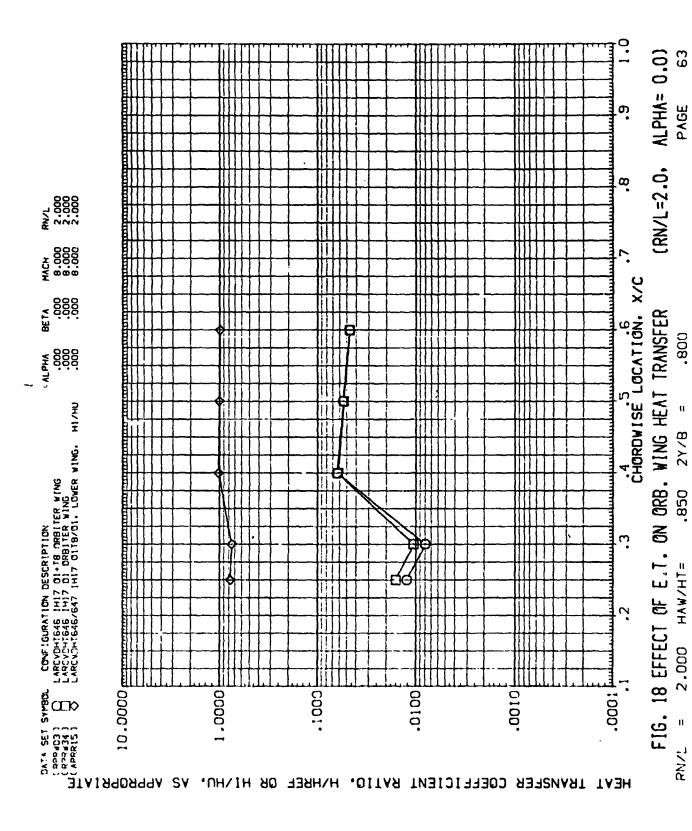
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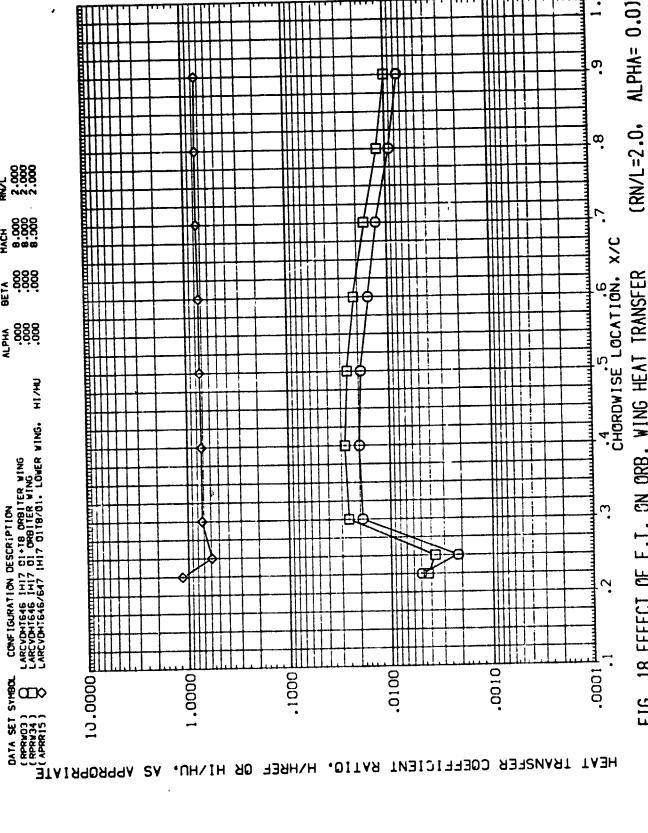








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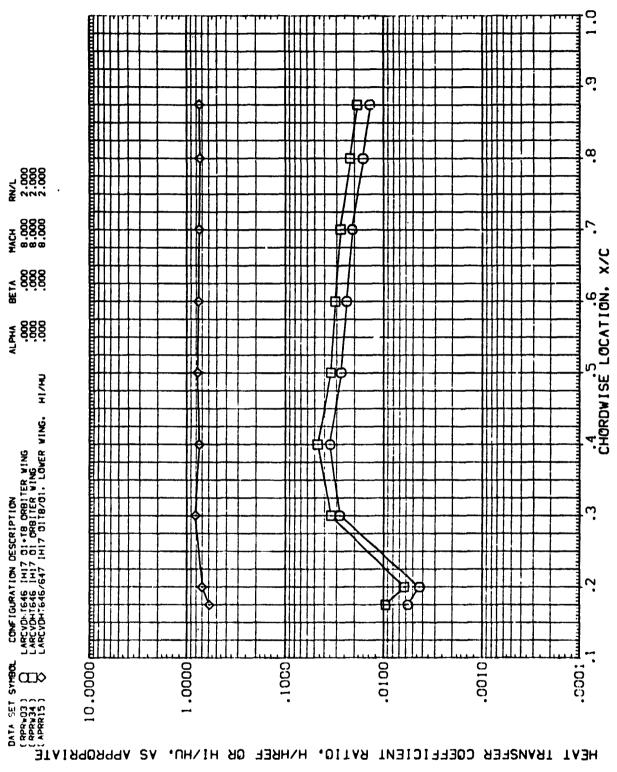
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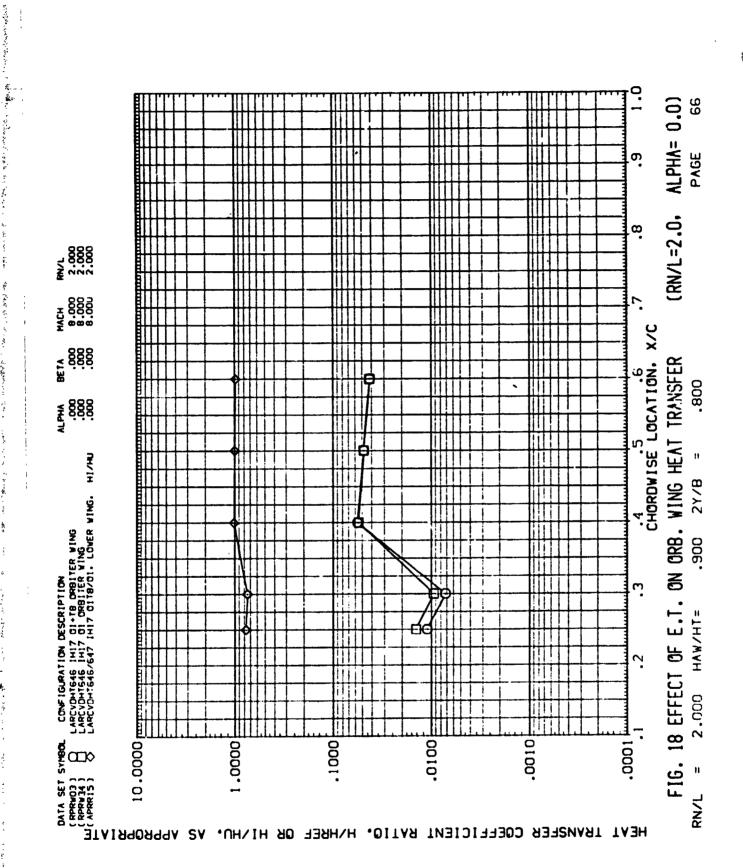
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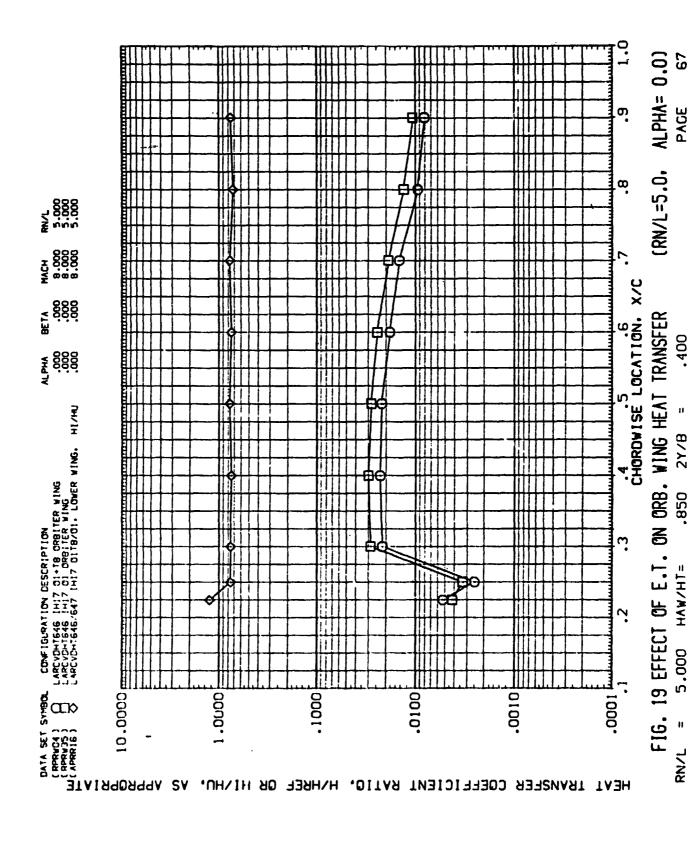
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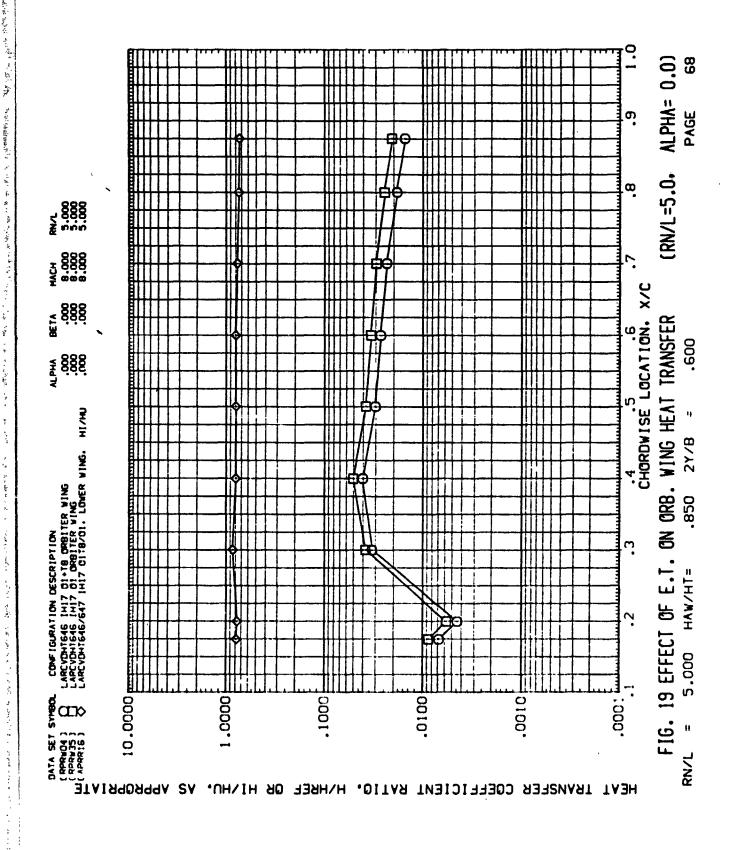
ALPHA= 0.0) PAGE (RN/L=2.0, FIG. 18 EFFECT OF E.T. ON ORB. WING HEAT TRANSFER = 2.000 HAW/HT= .900 2Y/B = .600

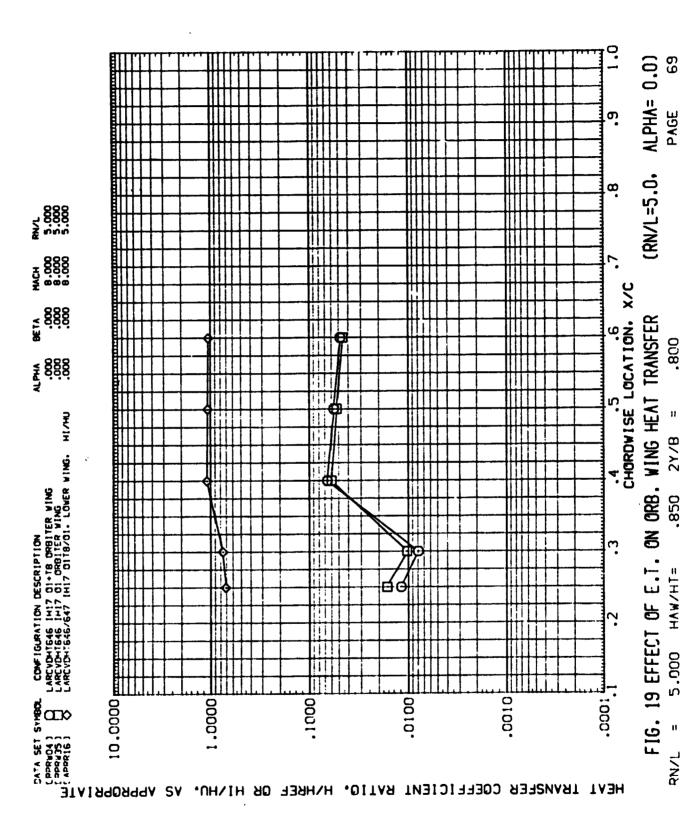


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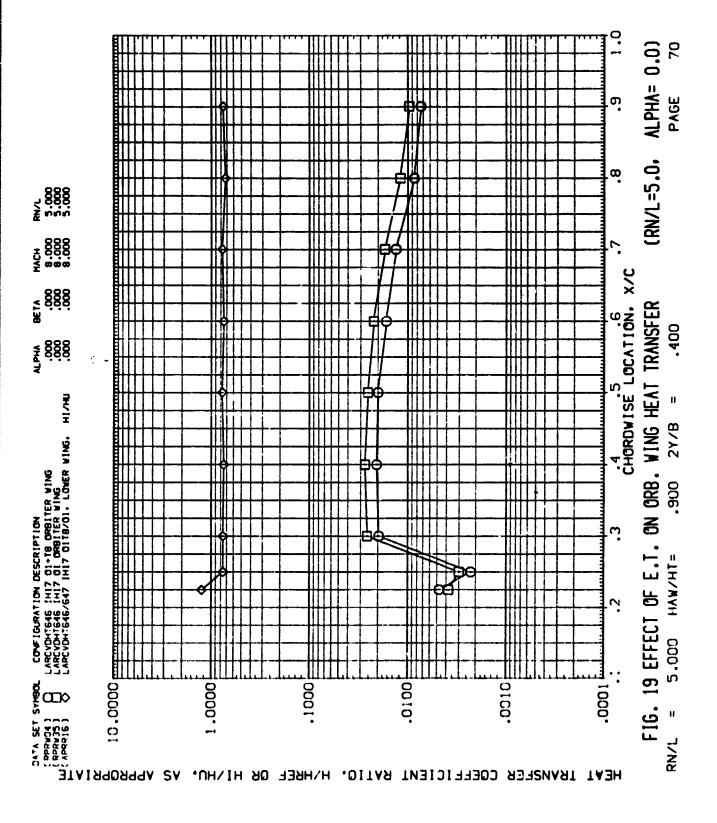


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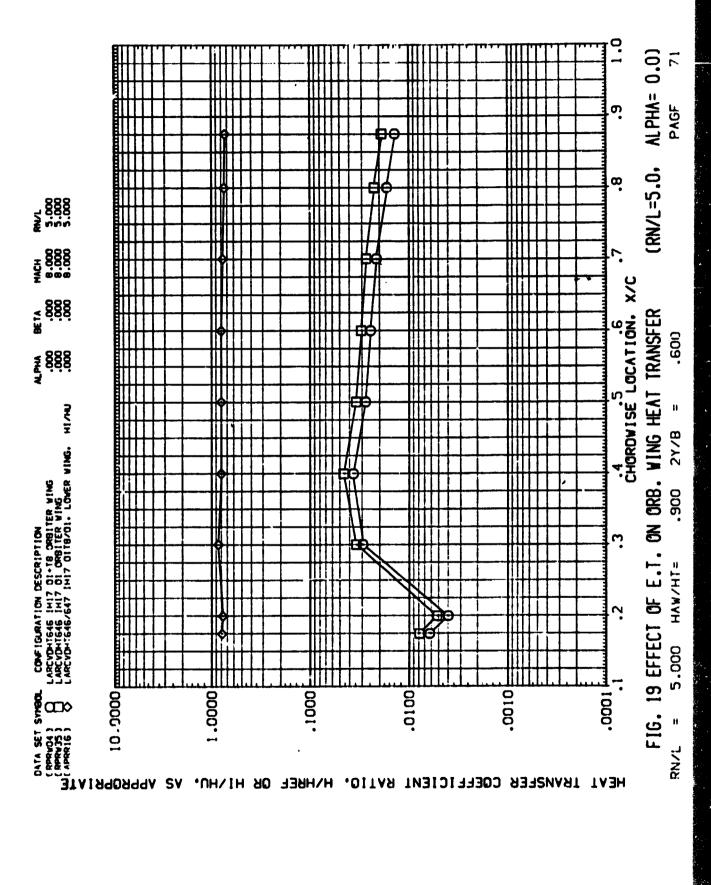


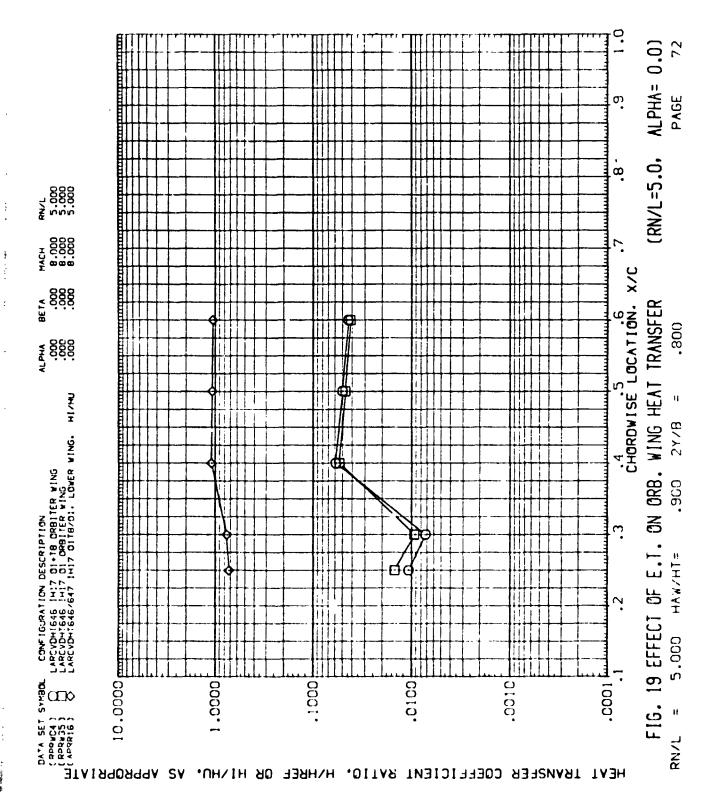
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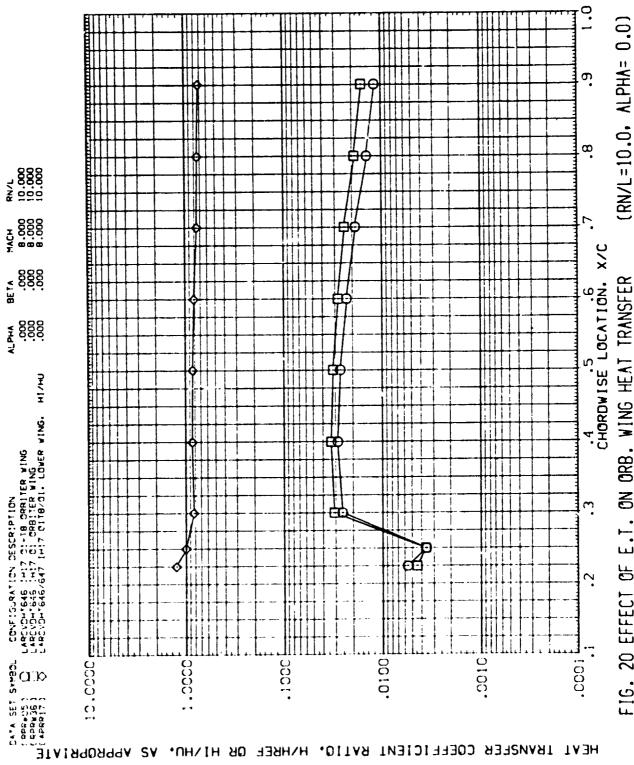


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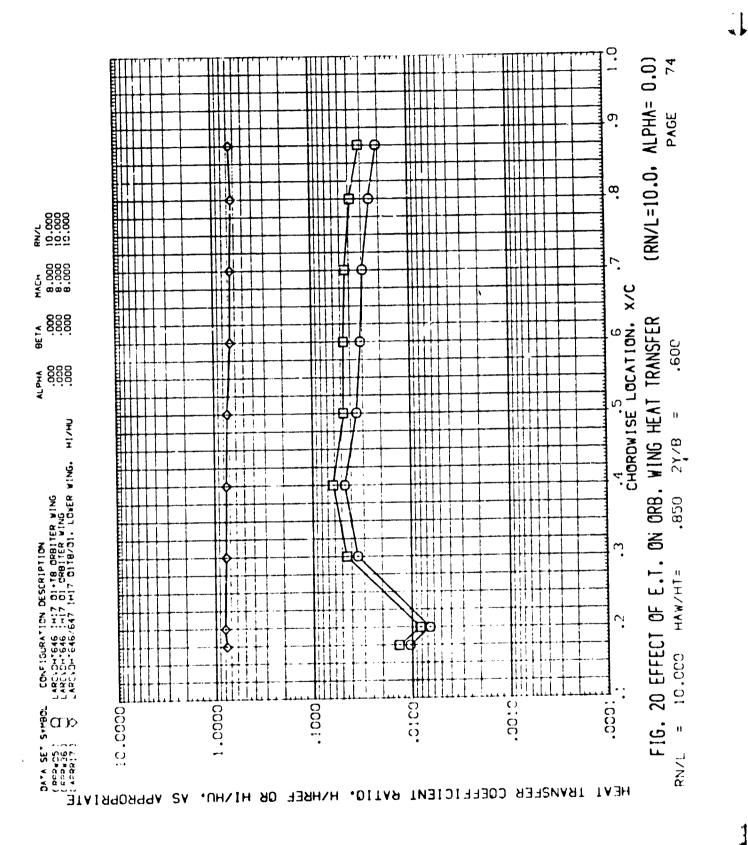
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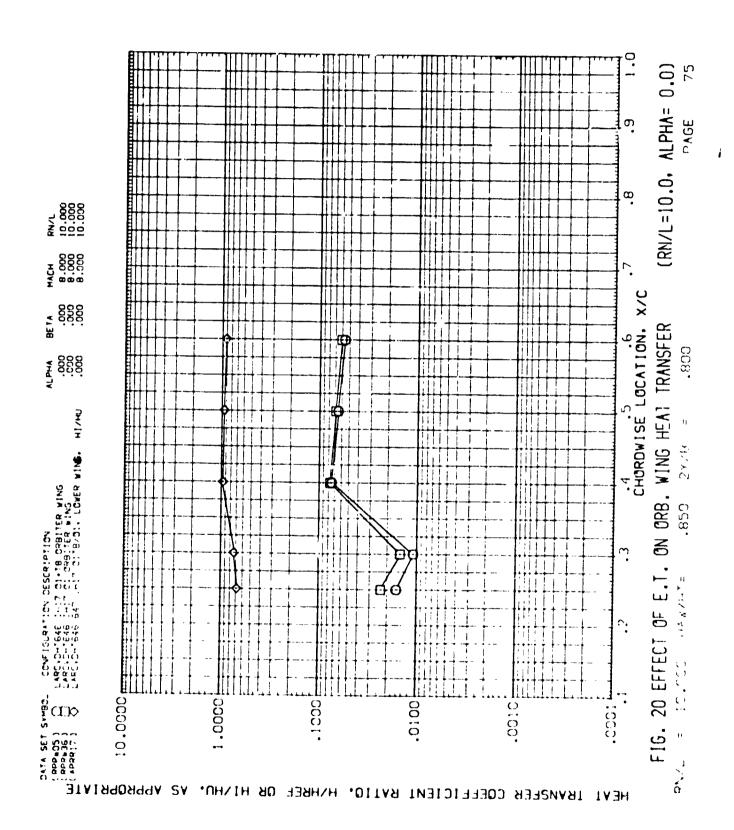




(RN/L=10.0, ALPHA= FIG. 20 EFFECT OF E.T. ON ORB. WING HEAT TRANSFER 10.000

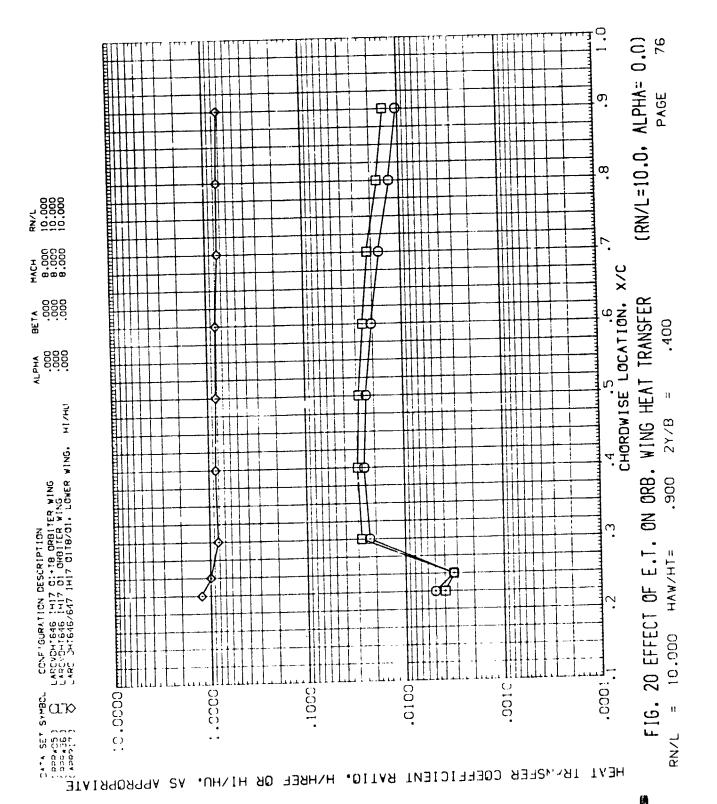


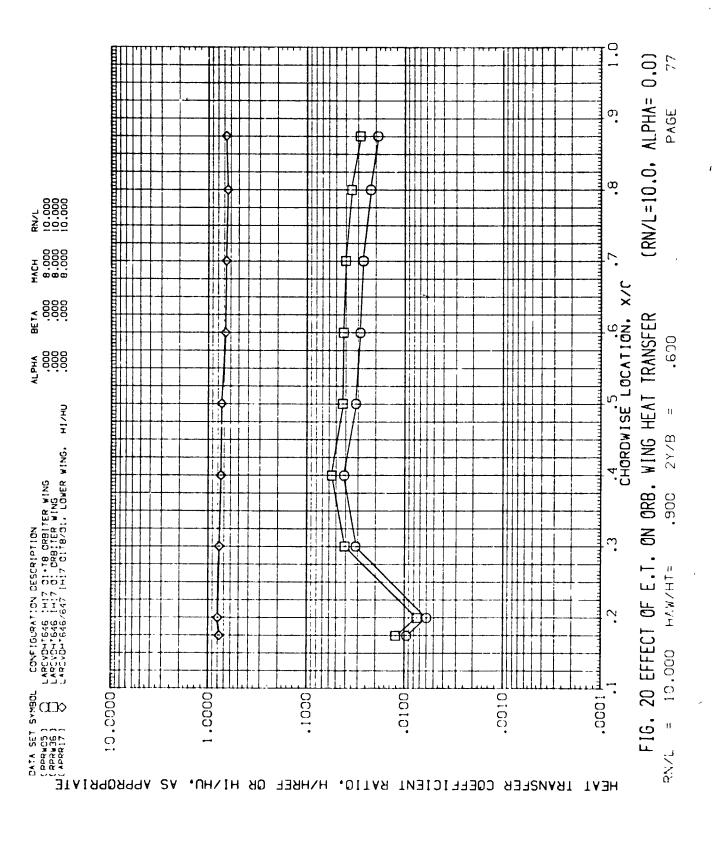
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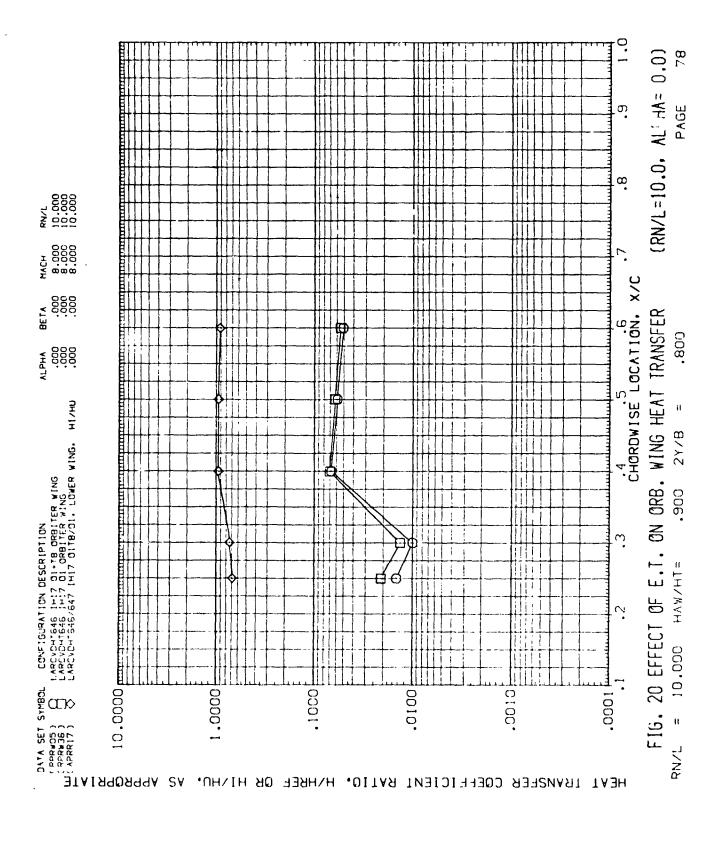


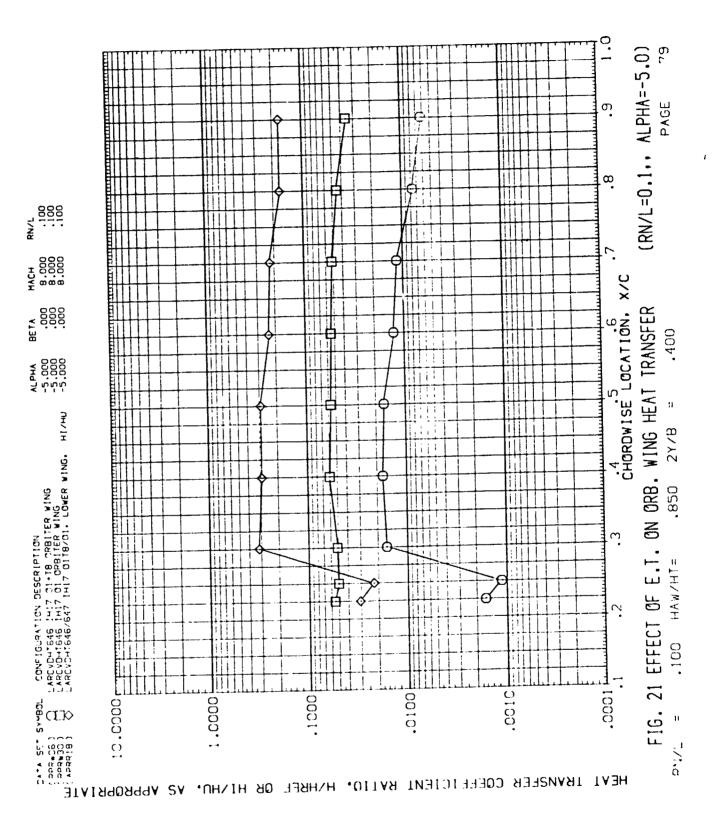
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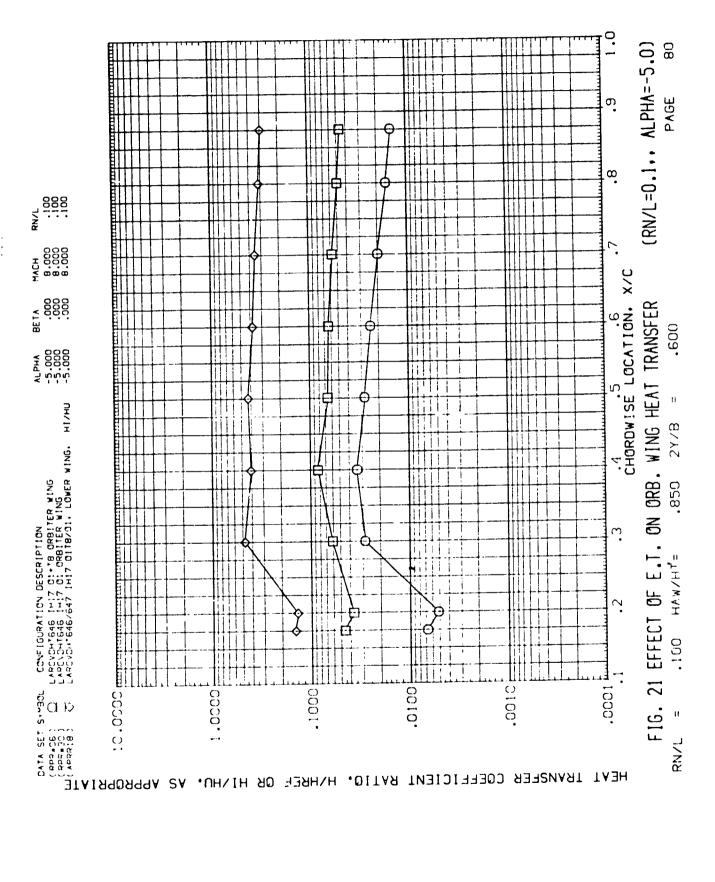
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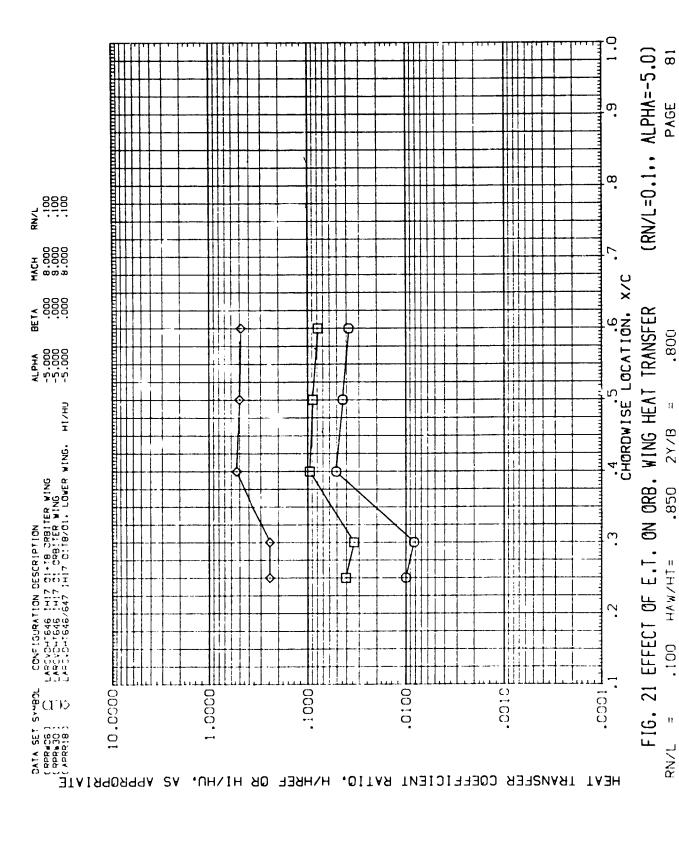


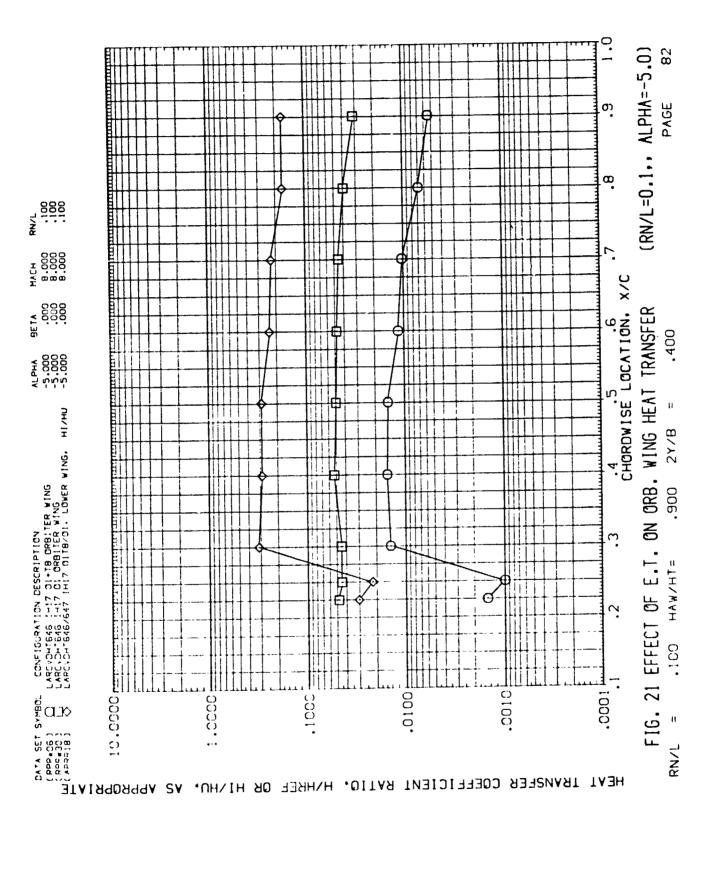






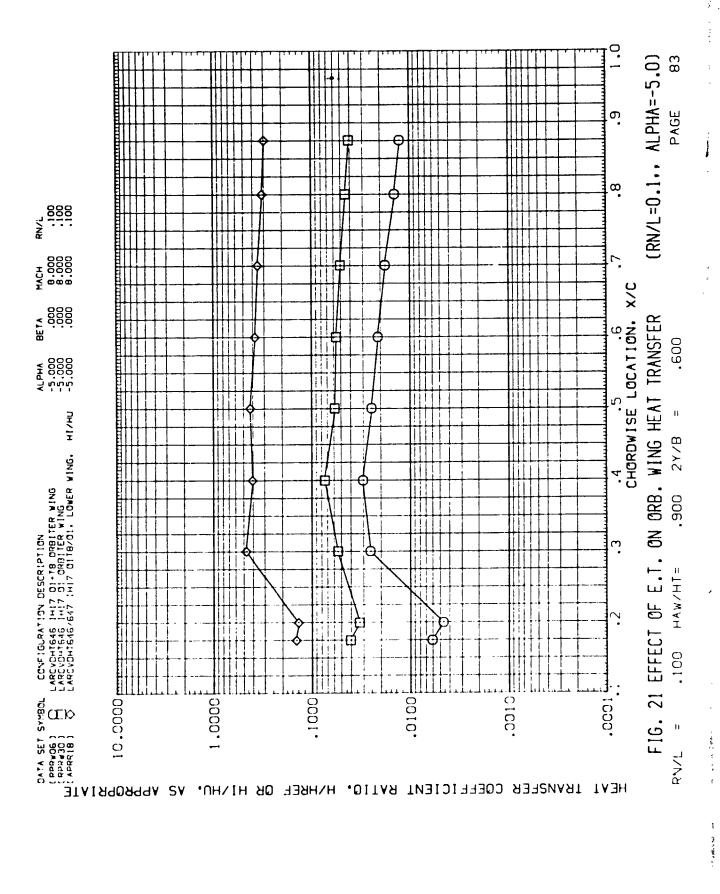




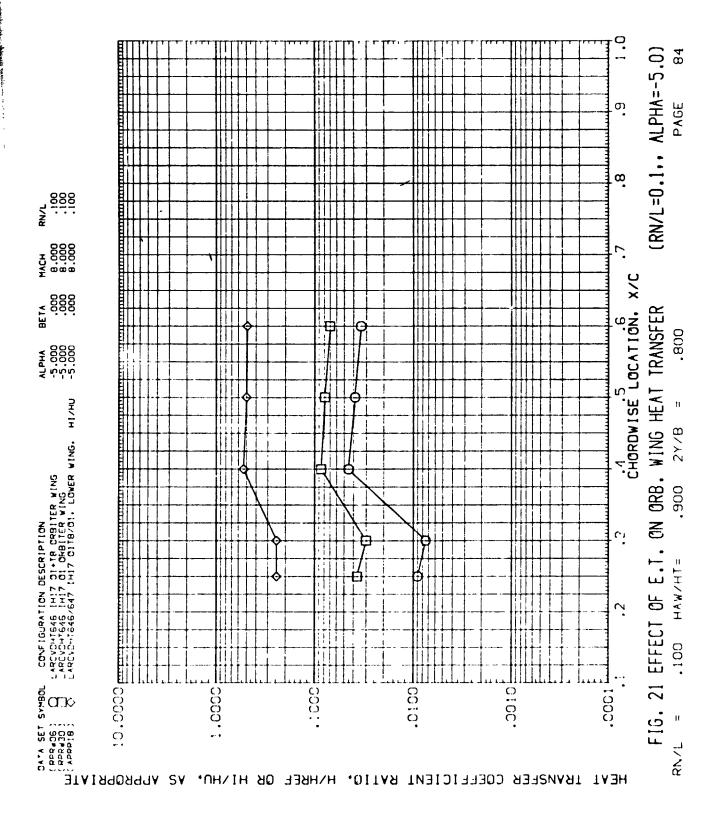


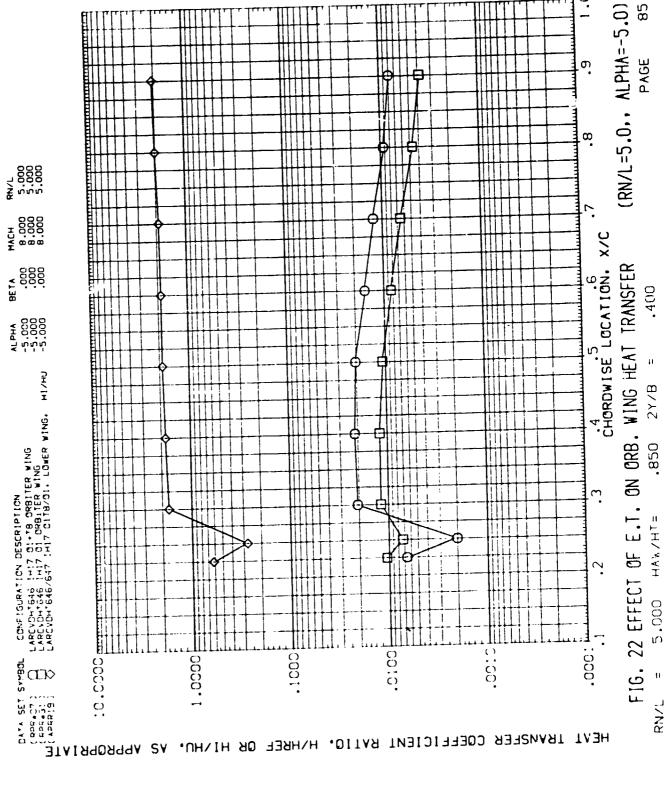
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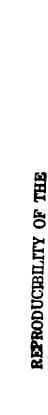


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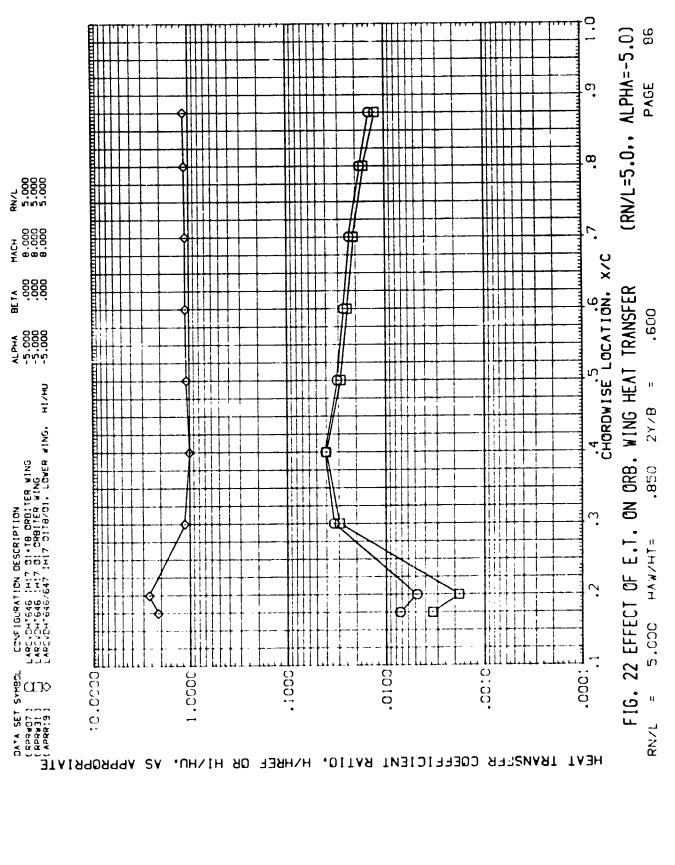


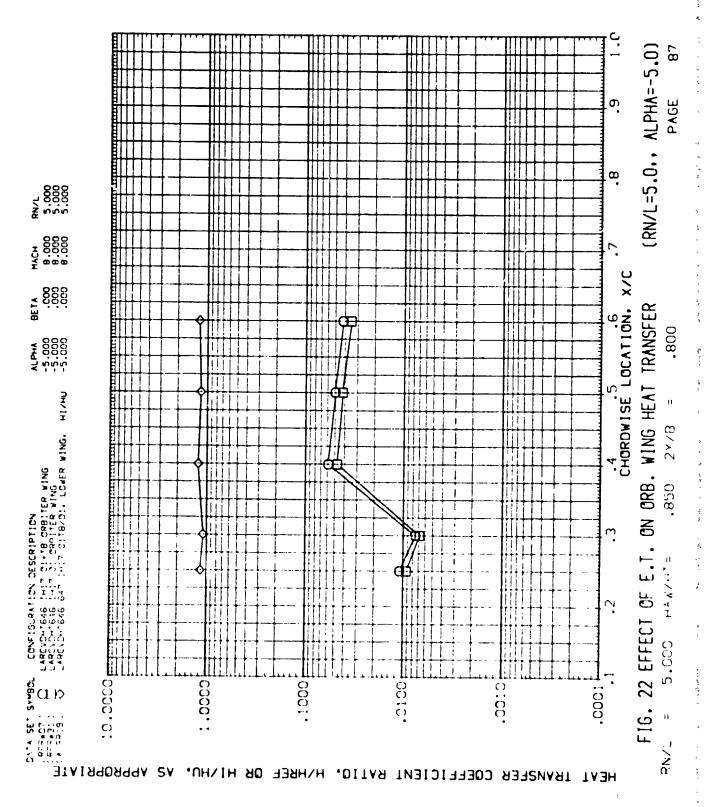


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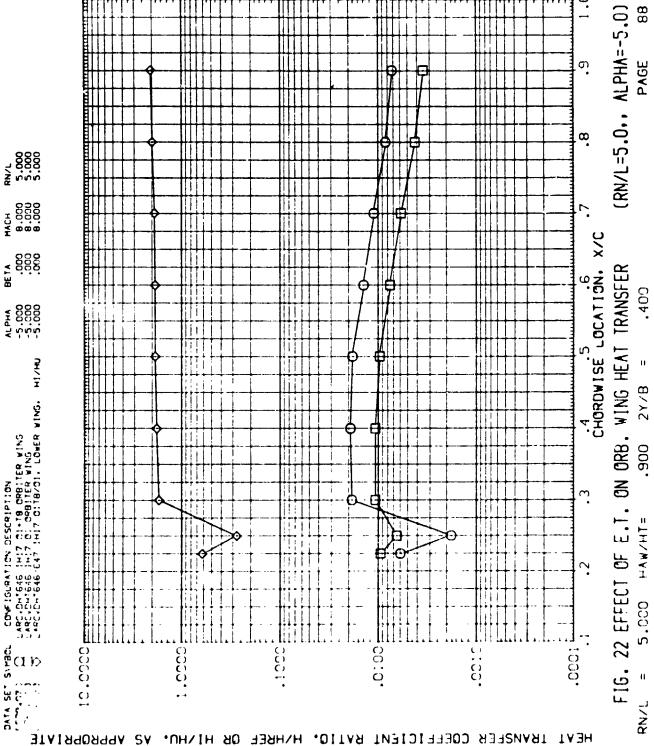




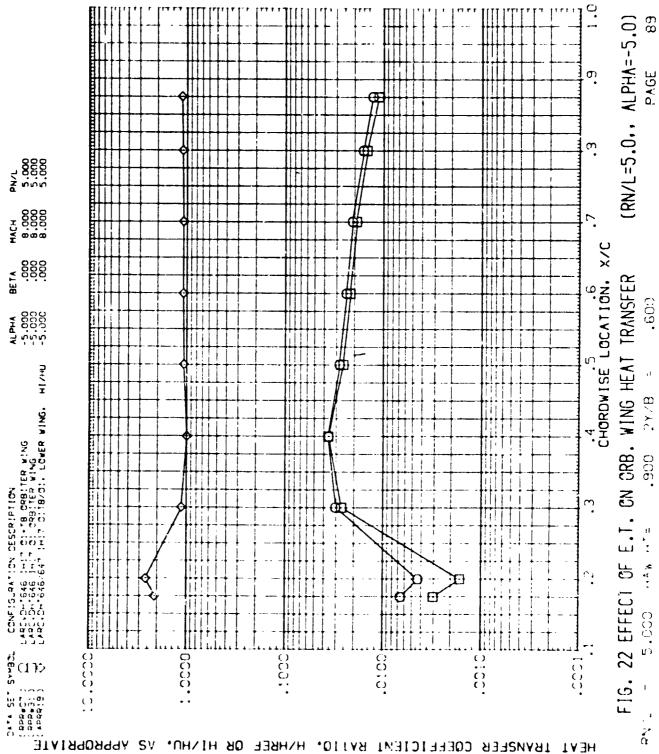
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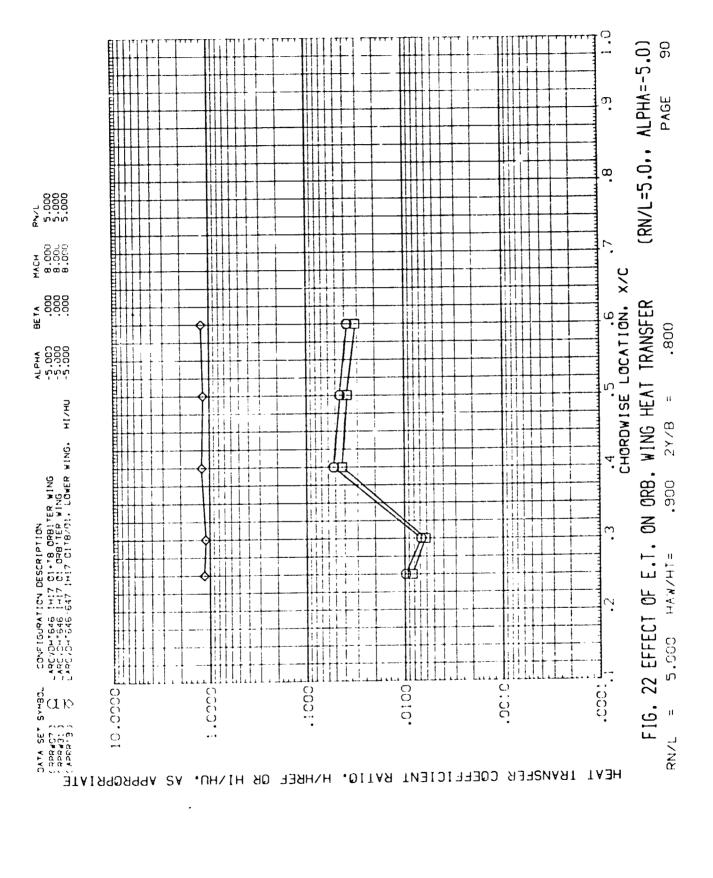
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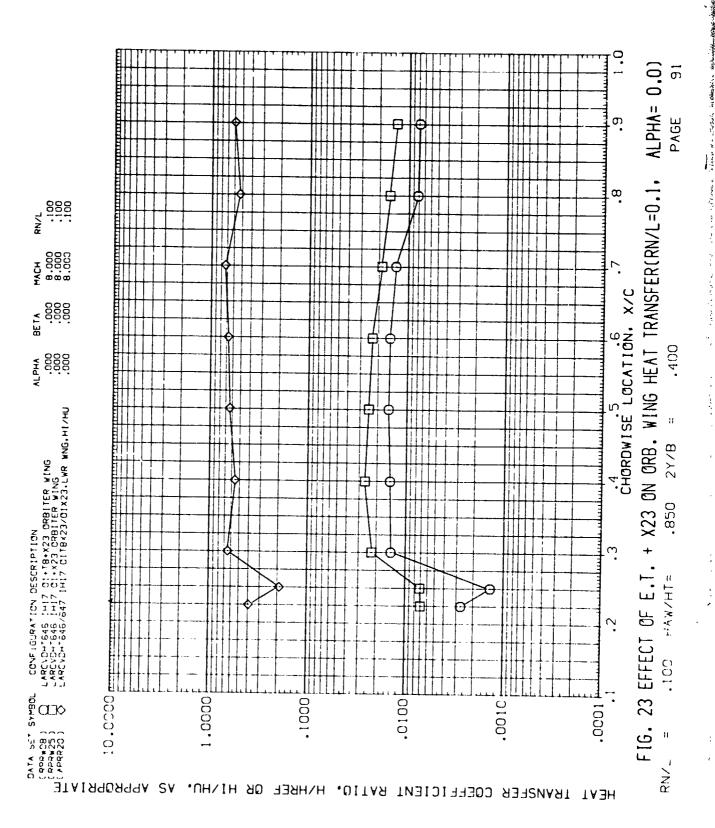
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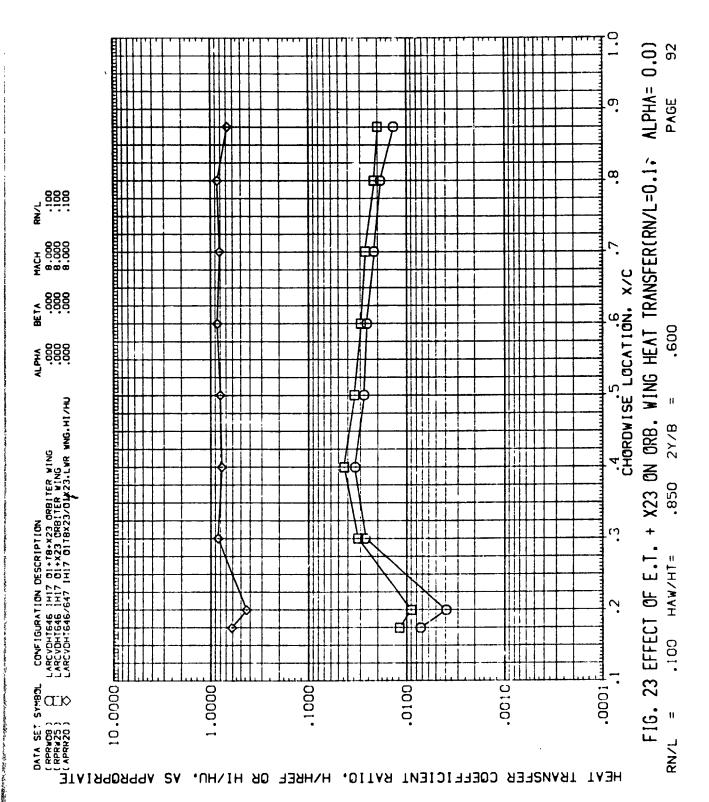
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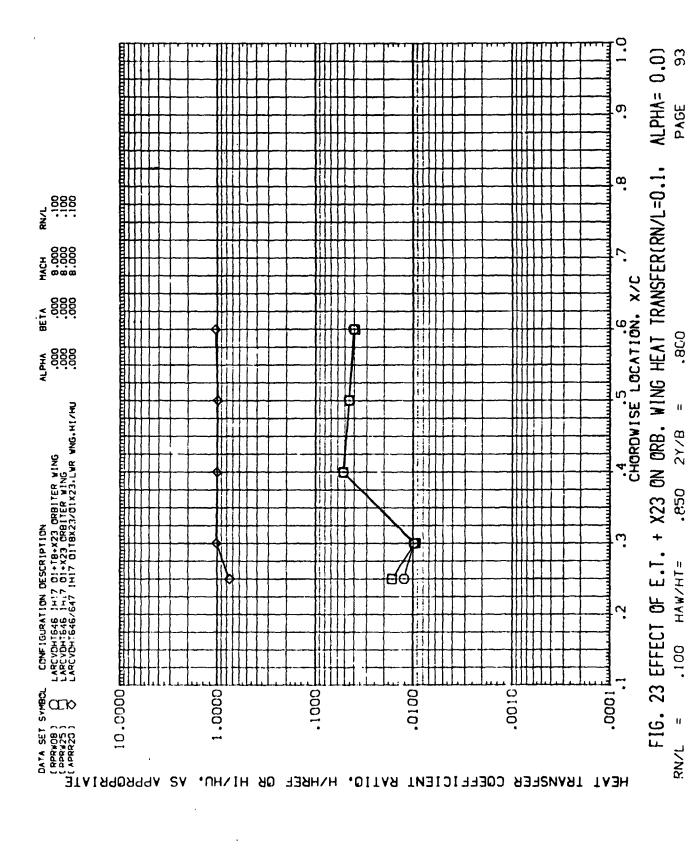


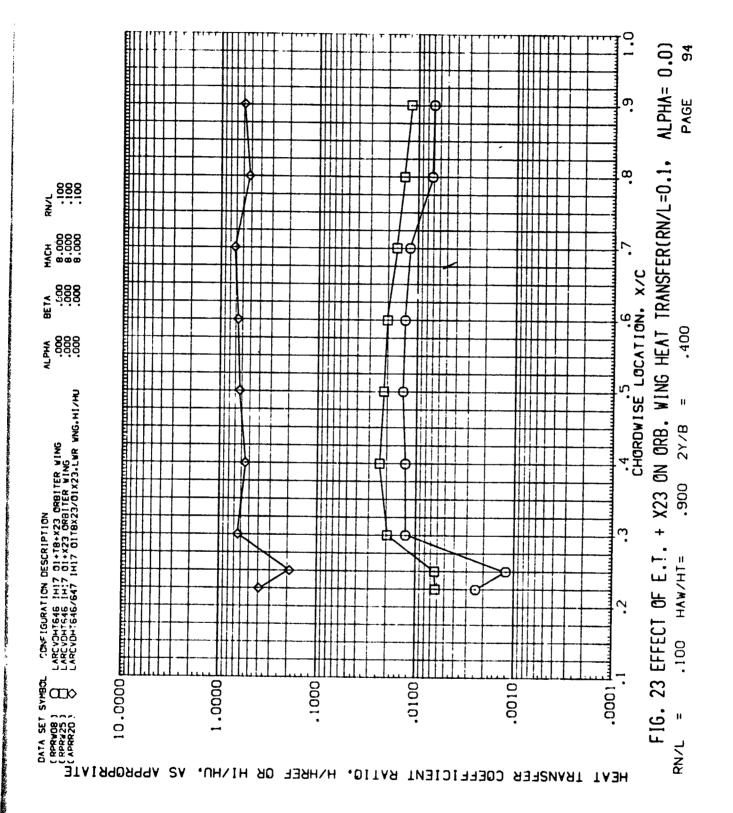


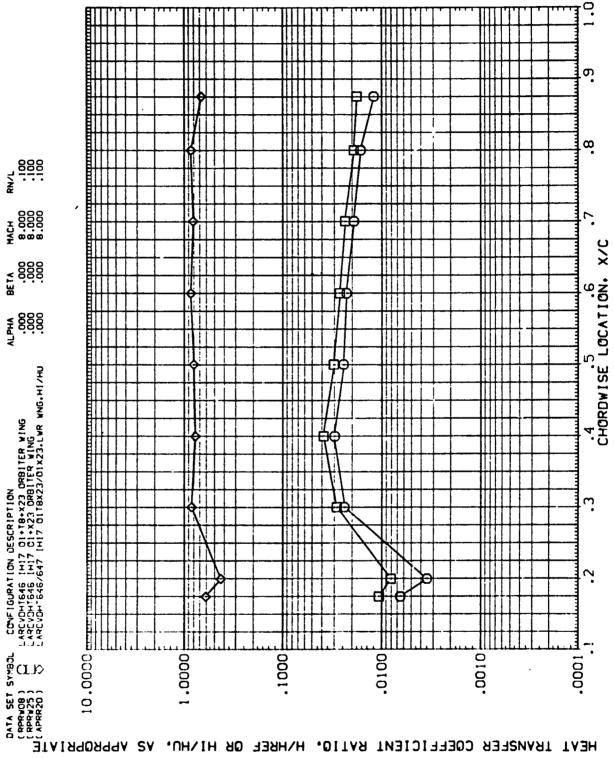


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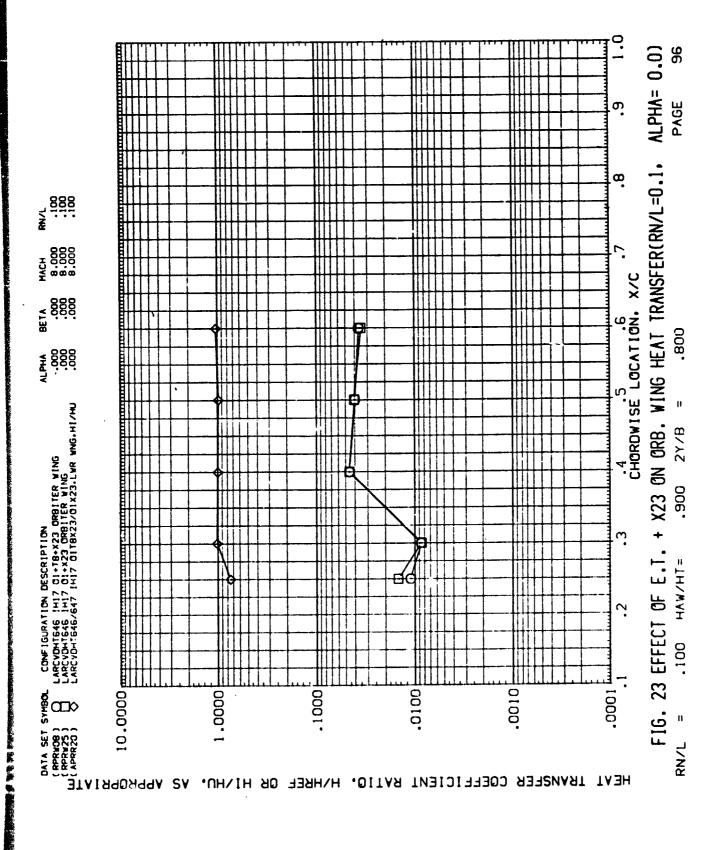




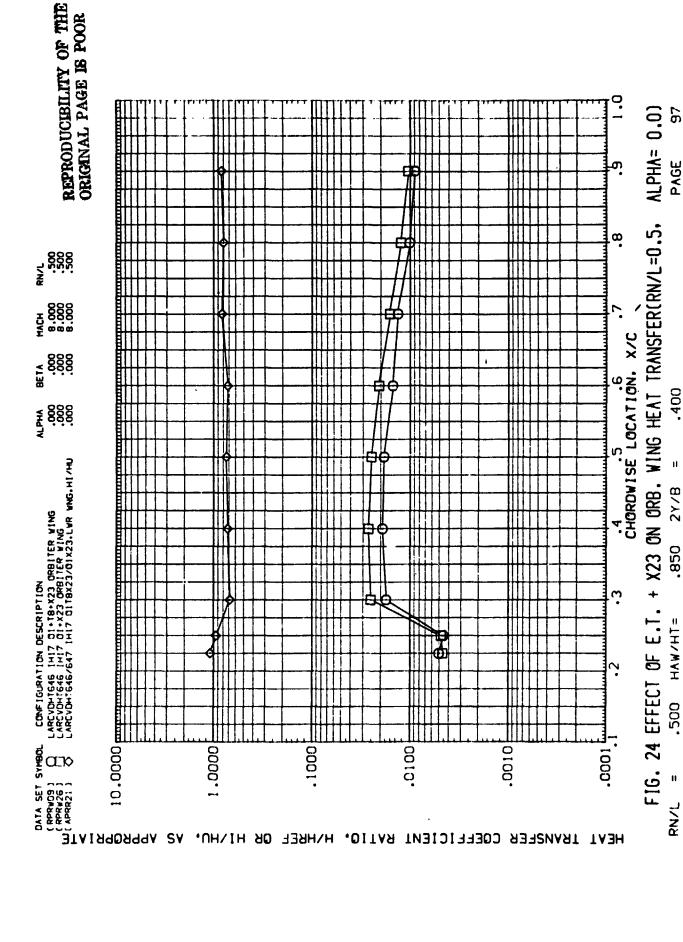




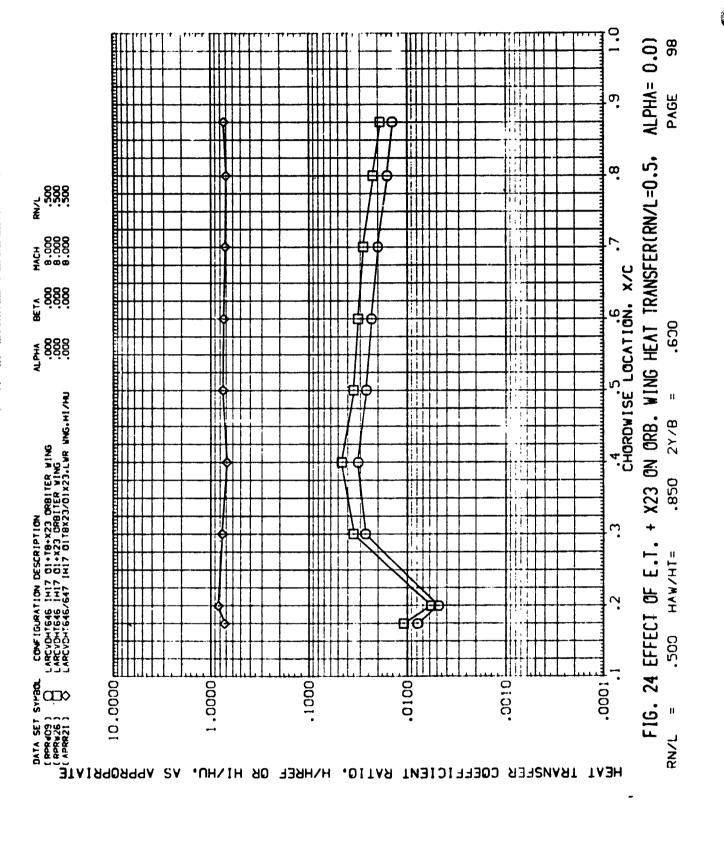
0.0 ALPHA= (WING HEAT TRANSFER(RN/L=0.1, + X23 ON ORB. FIG. 23 EFFECT OF E.T. HAW/HT= .100 RN/L

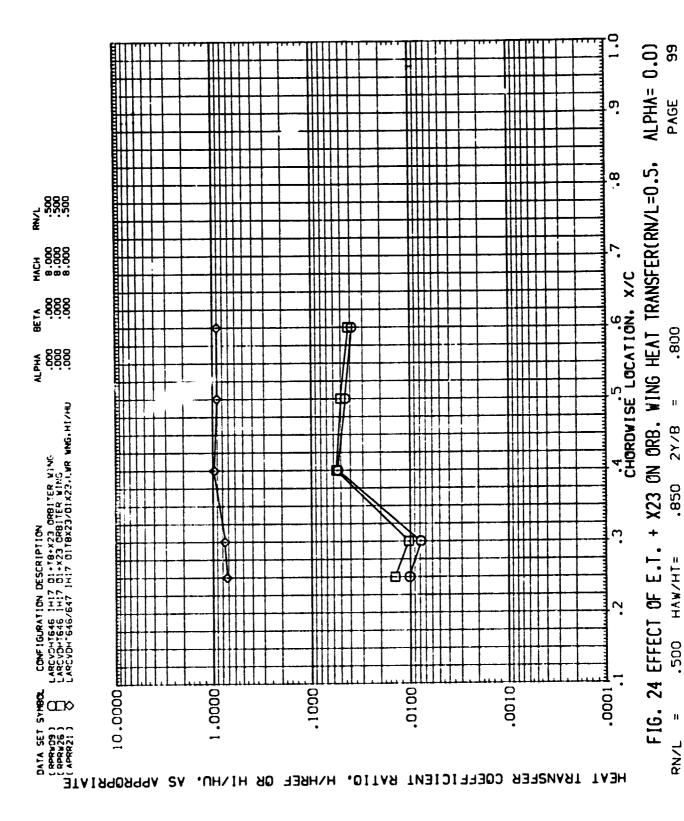


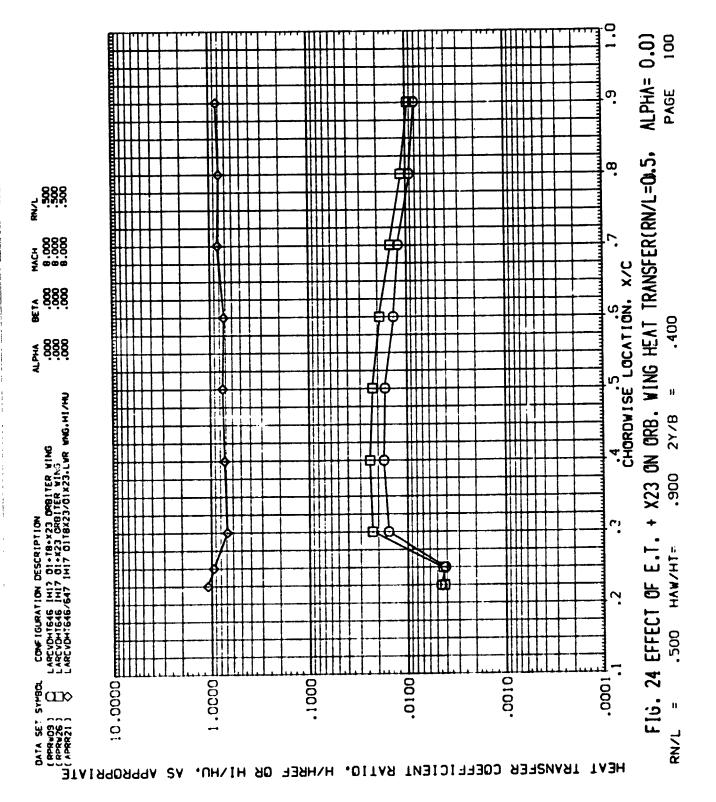
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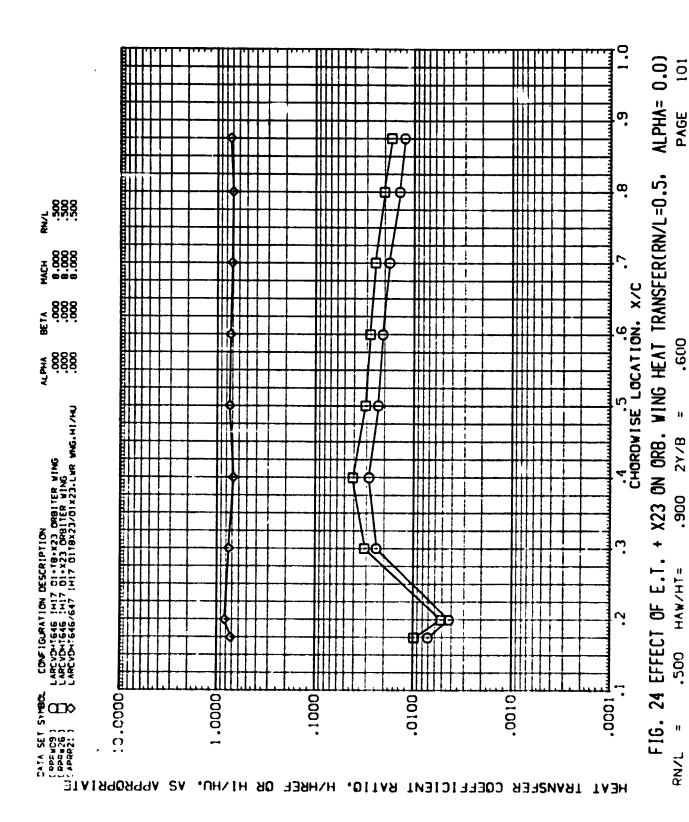


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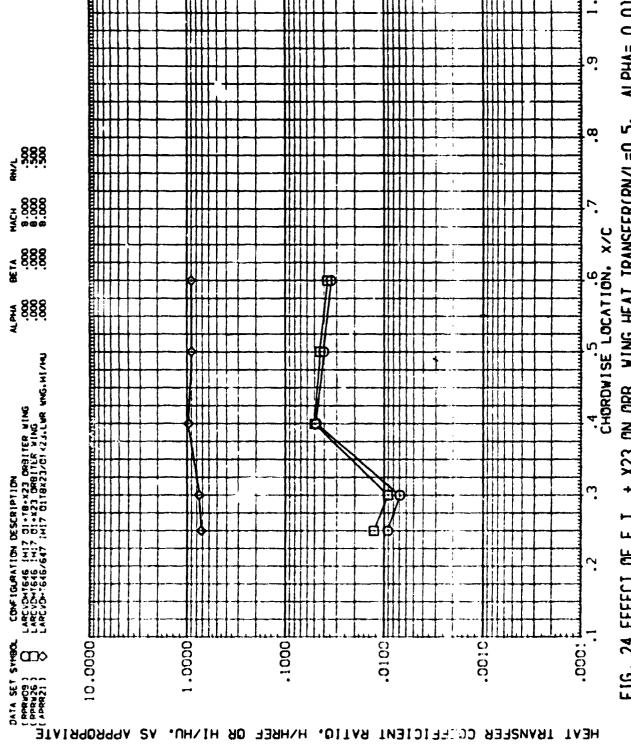




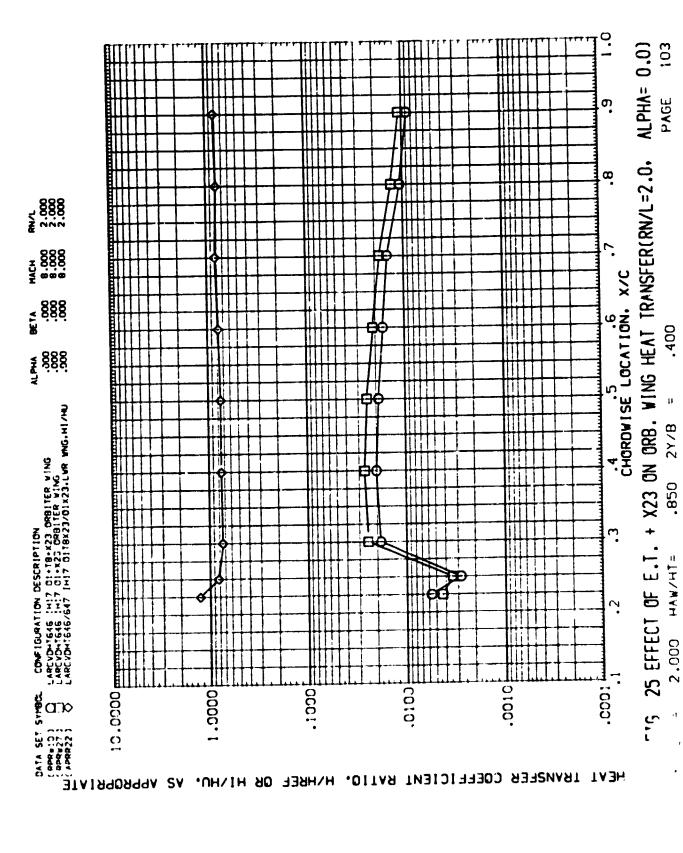




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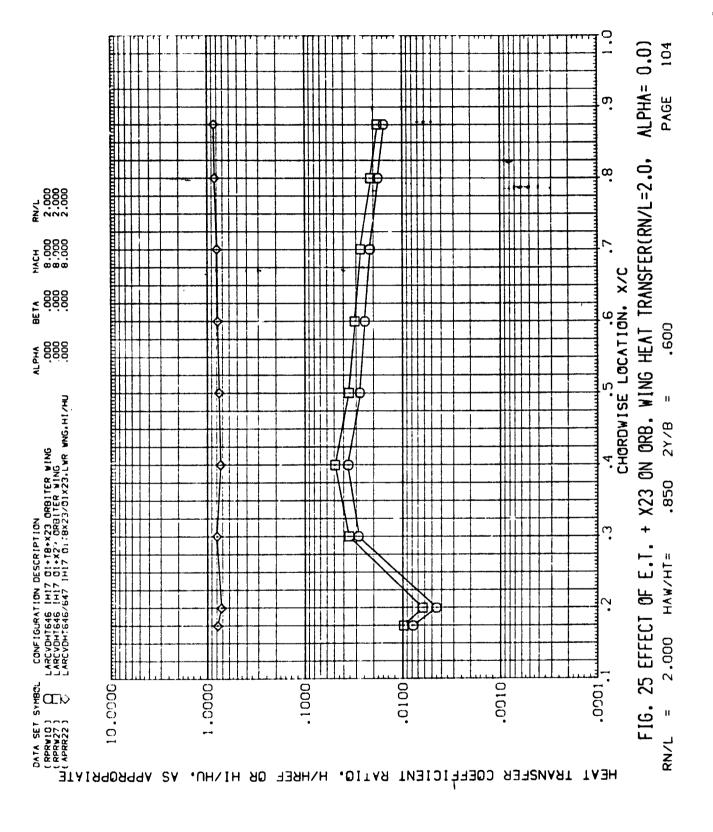


102 ALPHA= 0.0) PAGE + X23 ON ORB. WING HEAT TRANSFER(RN/L=0.5, FIG. 24 EFFECT OF E.T. .500

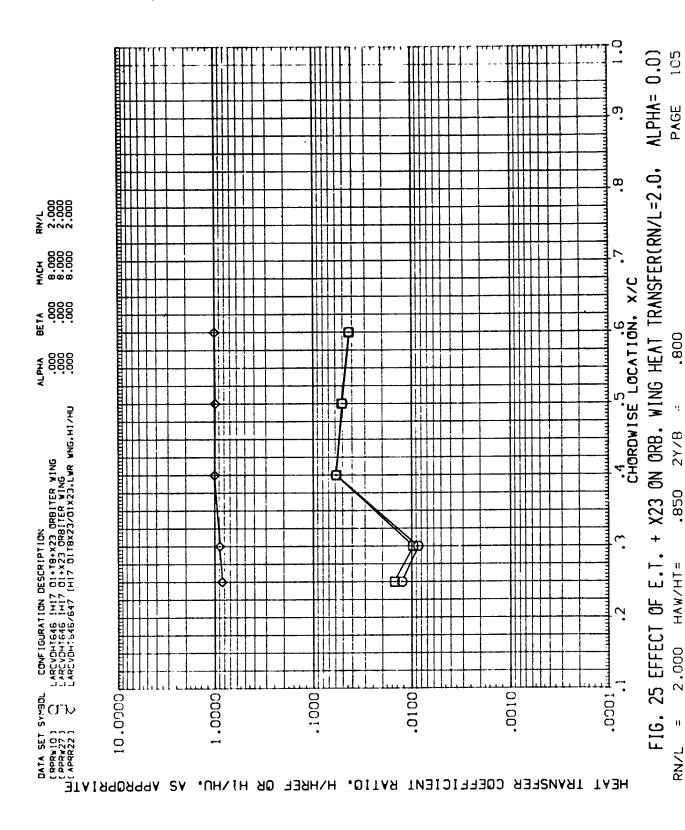


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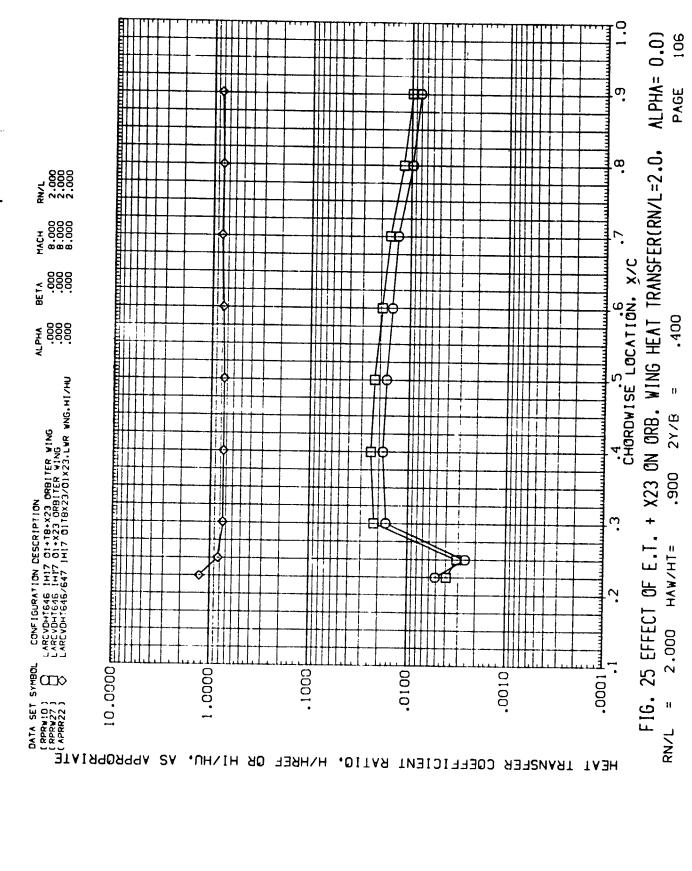
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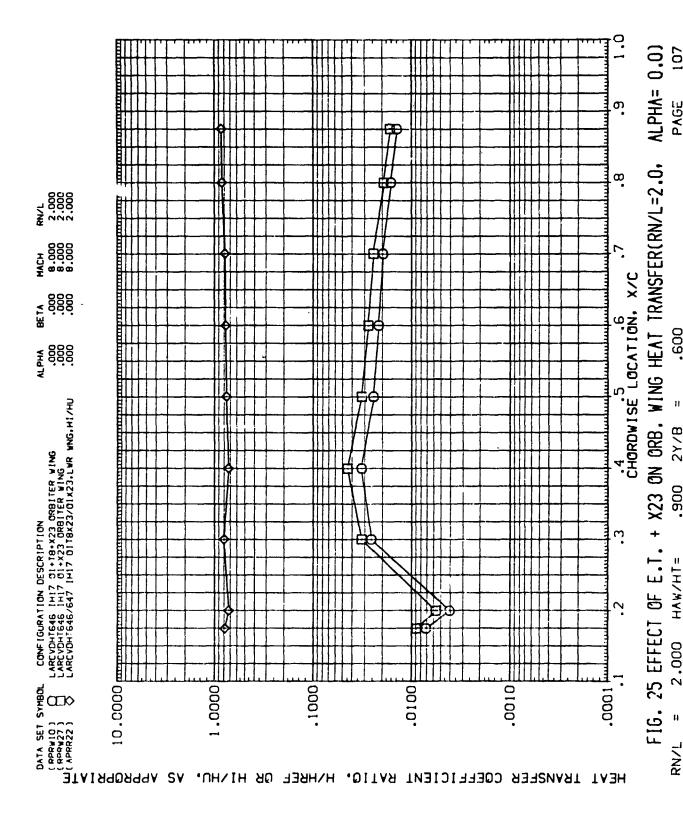
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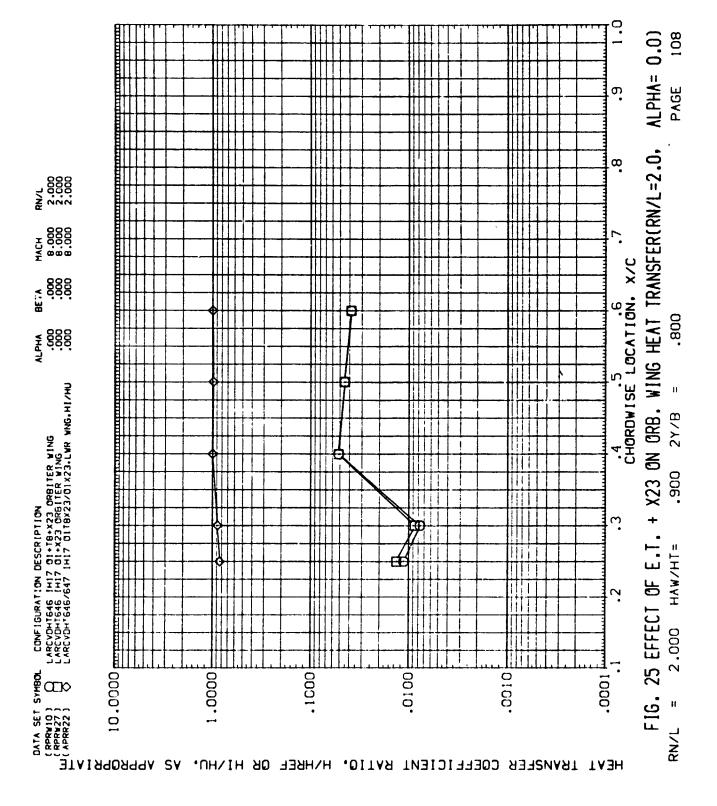


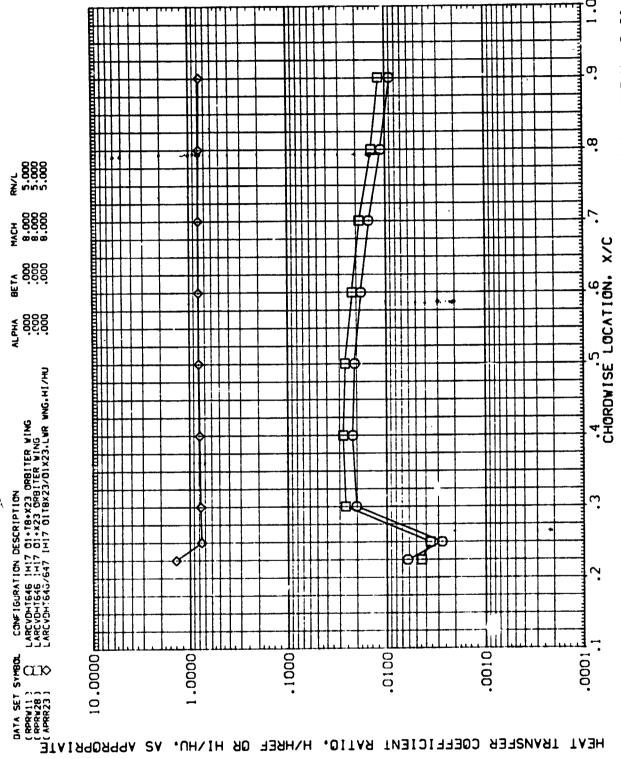
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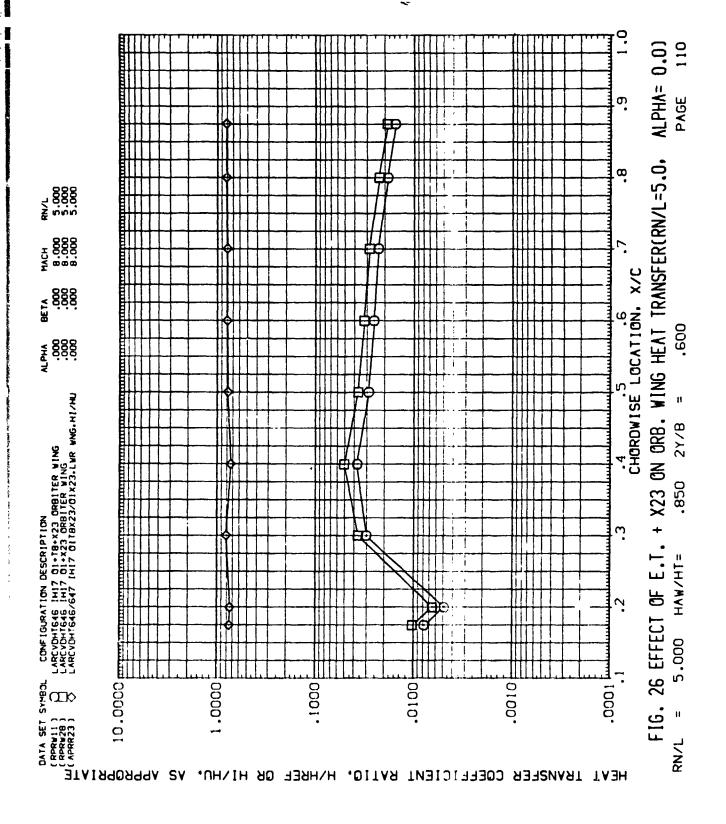


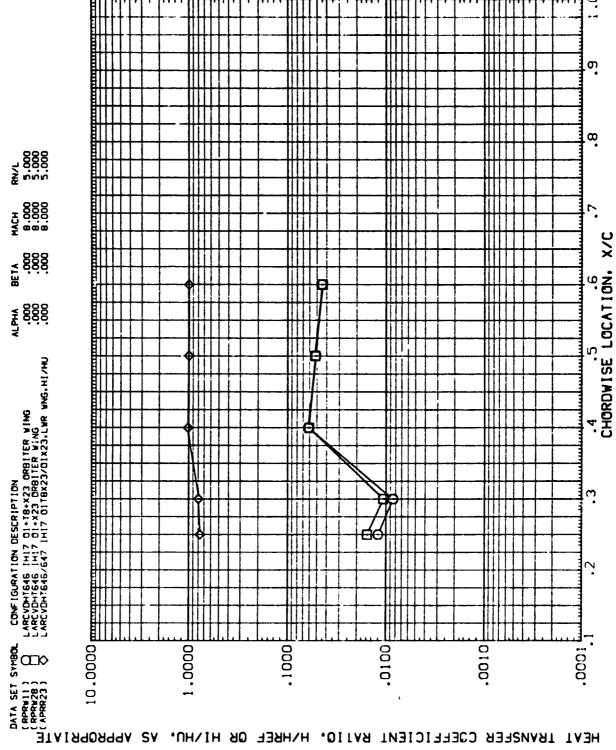




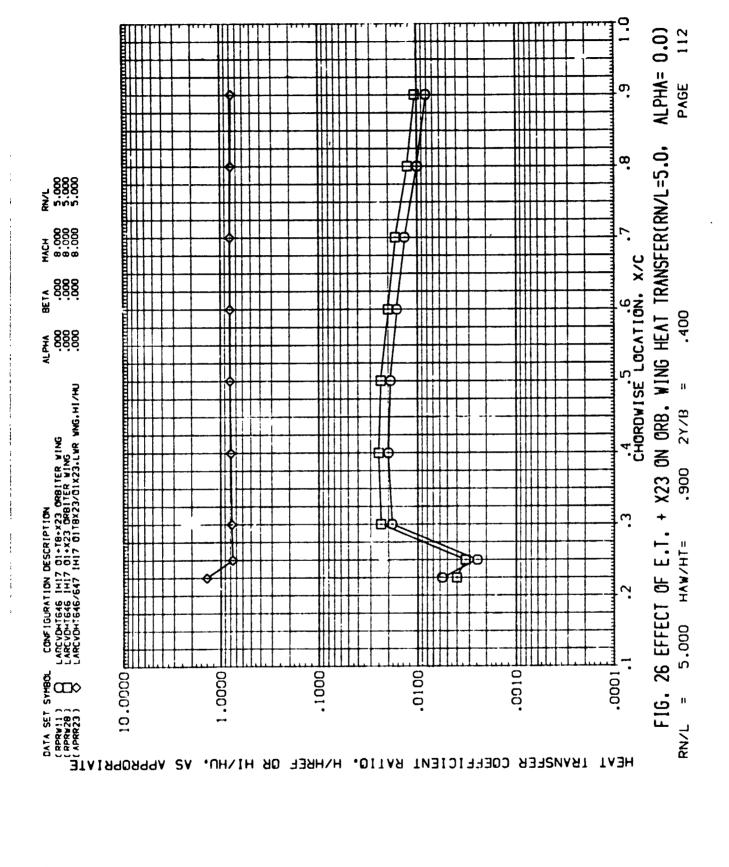
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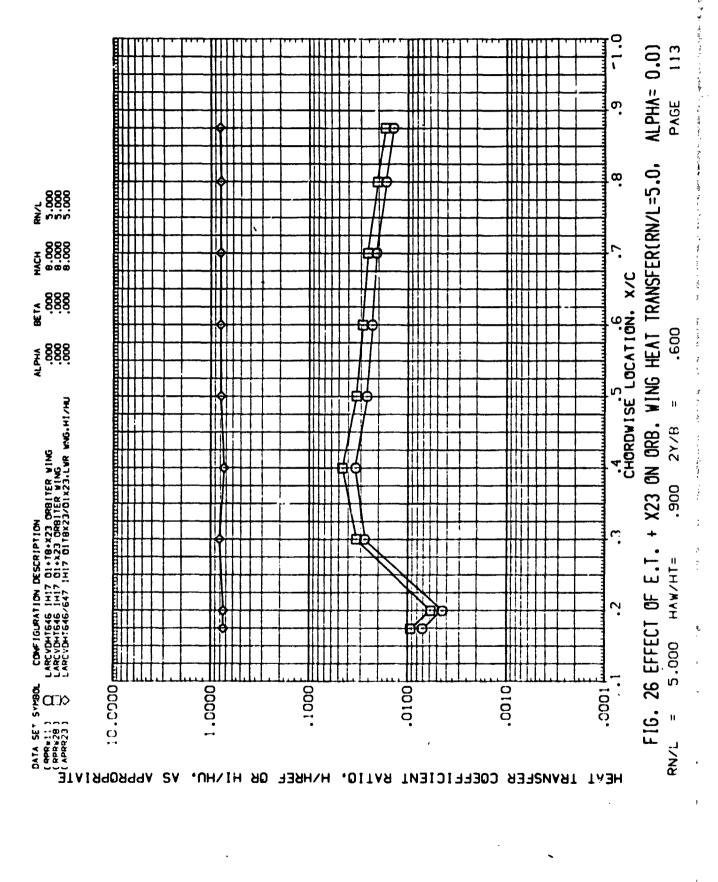
109 ALPHA= 0.0) PAGE + X23 ON ORB. WING HEAT TRANSFER(RN/L=5.0, .400 2Y/B .850 FIG. 26 EFFECT OF E.I. HAW/HT .000

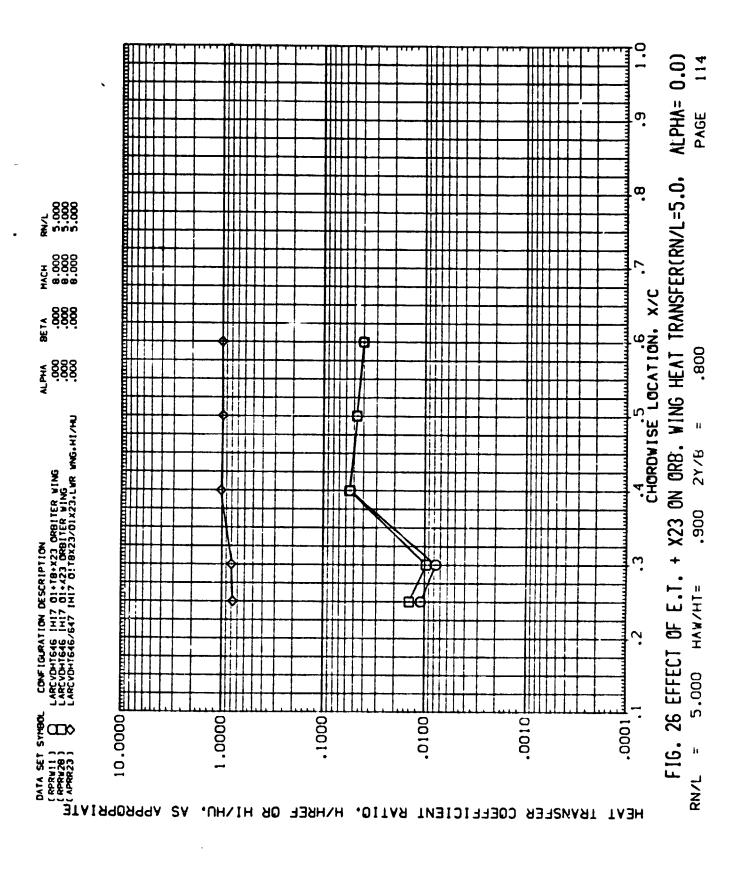


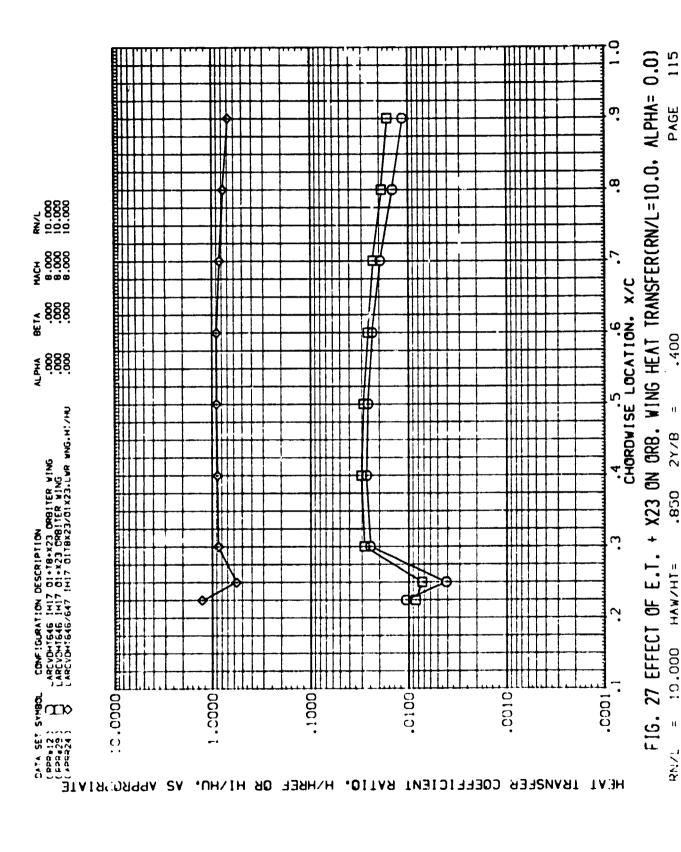


ALPHA= 0.0) PAGE + X23 ON ORB. WING HEAT TRANSFER(RN/L=5.0, .800 .850 FIG. 26 EFFECT OF E.T. HAW/HT= 5.000









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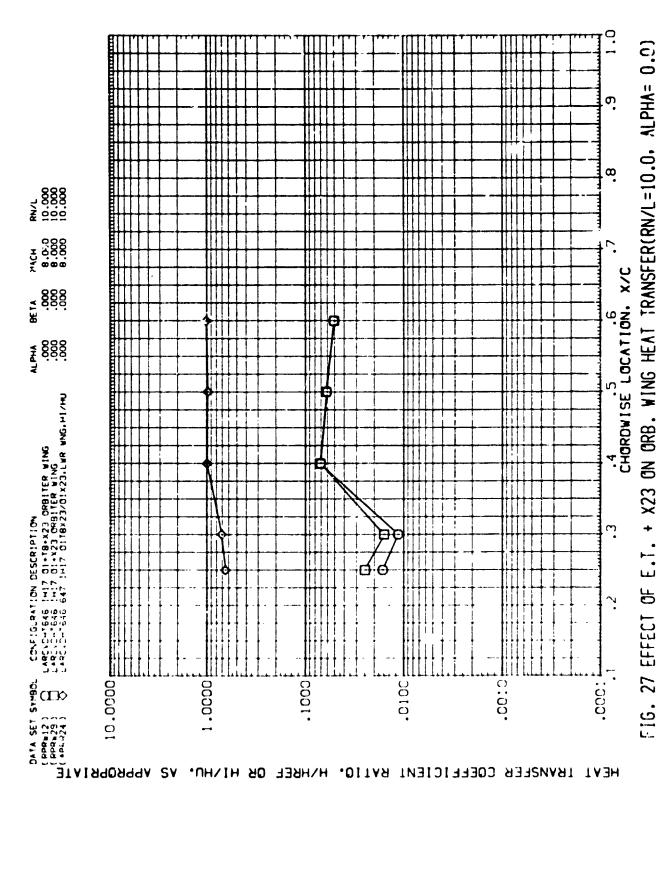
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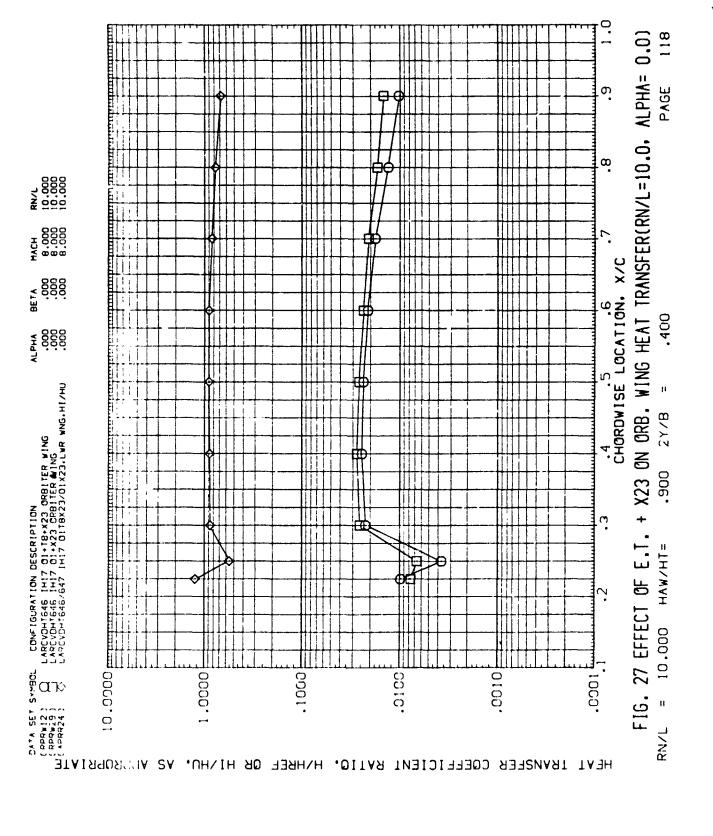
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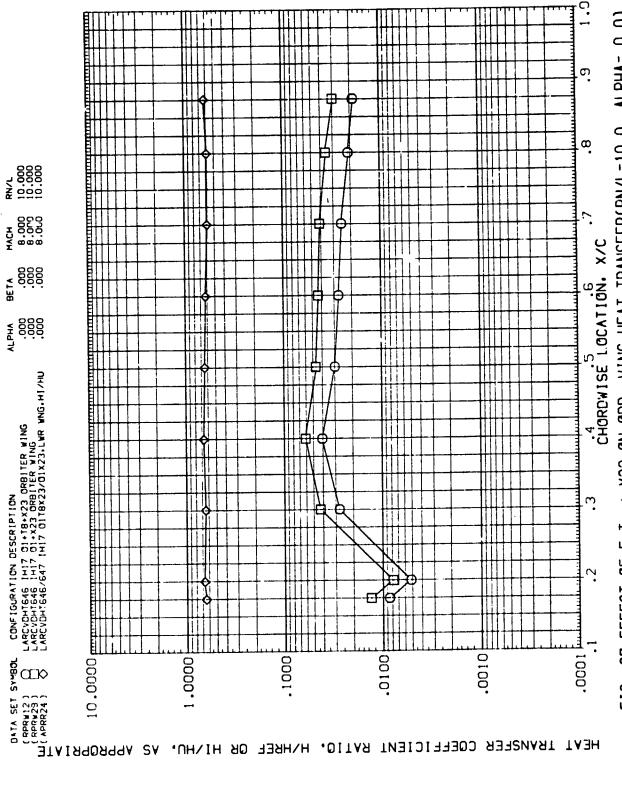
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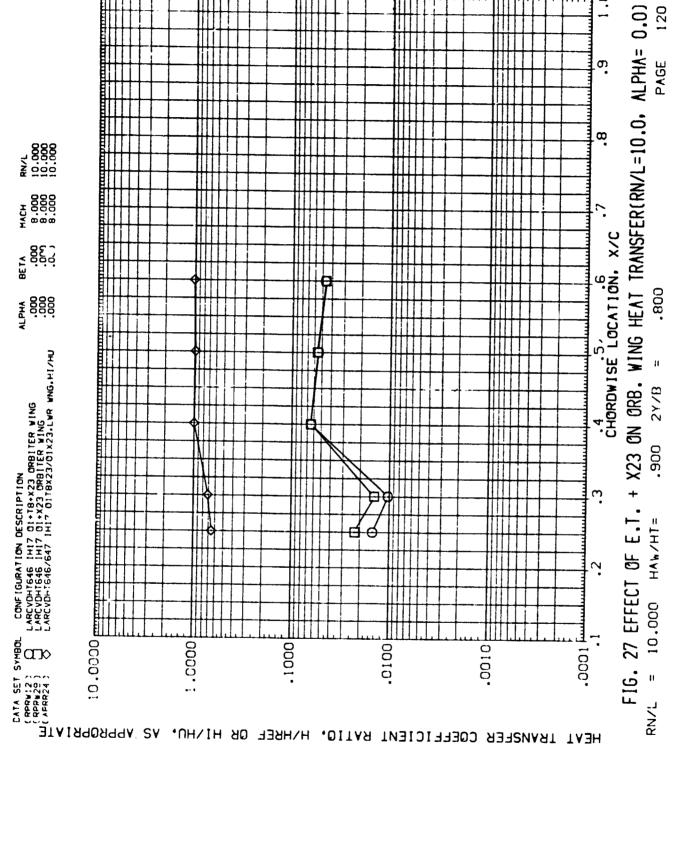


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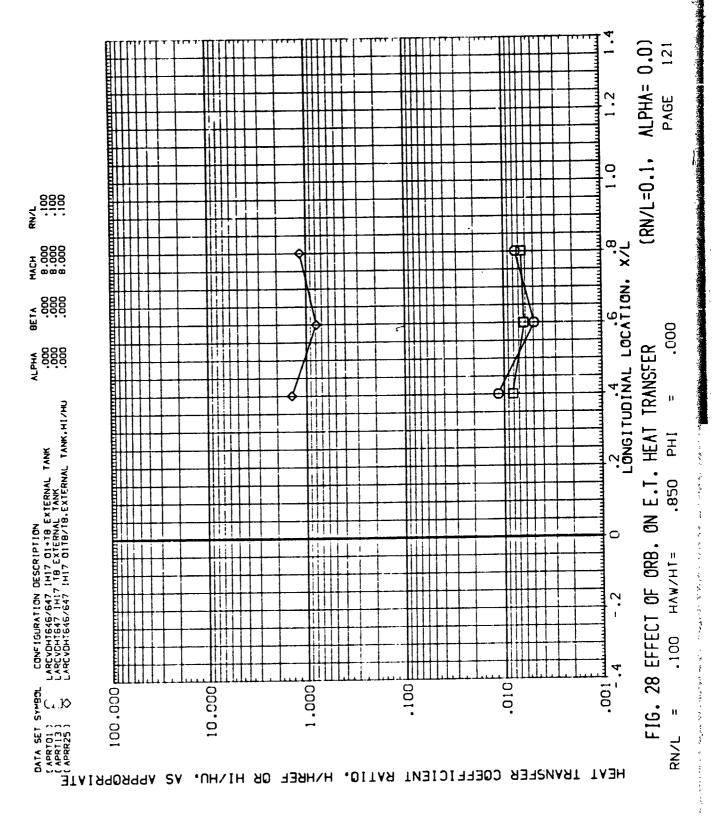
WING HEAT TRANSFER(RN/L=10.0, ALPHA= 0.0) PAGE .600 + X23 ON ORB. 21/3 900 FIG. 27 EFFECT OF E.I. HAW/HT= 10.000

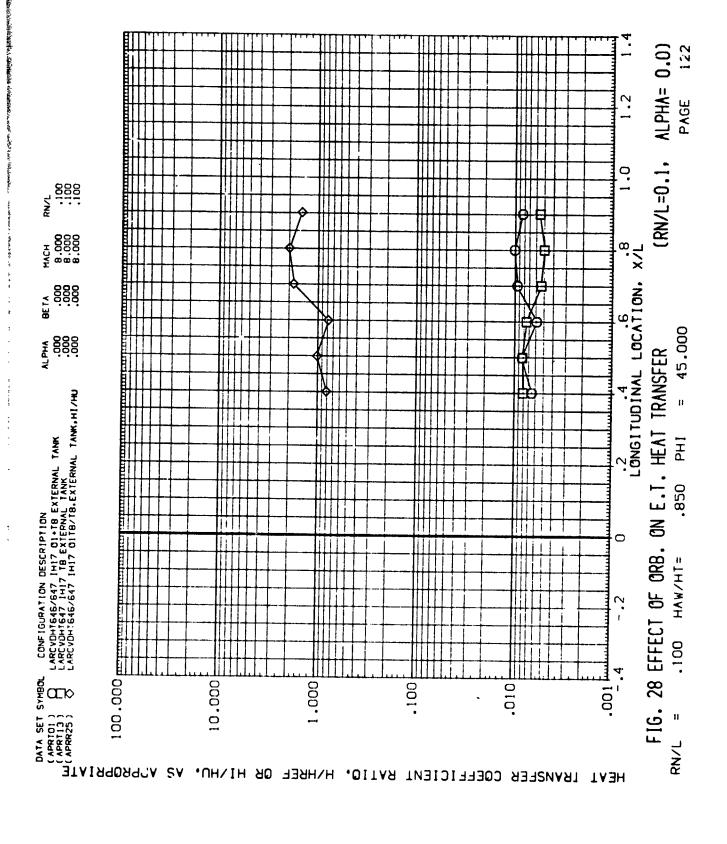
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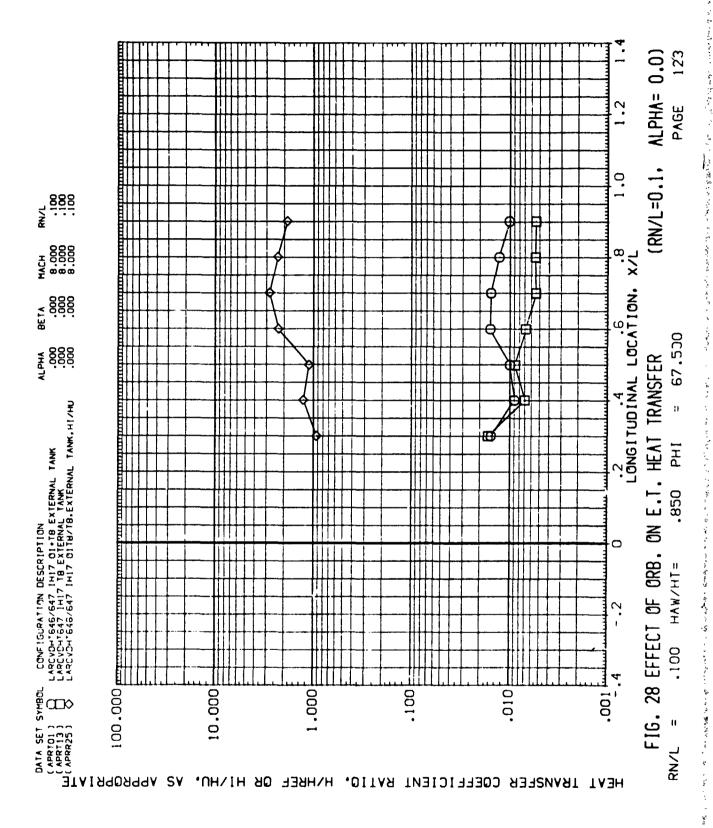


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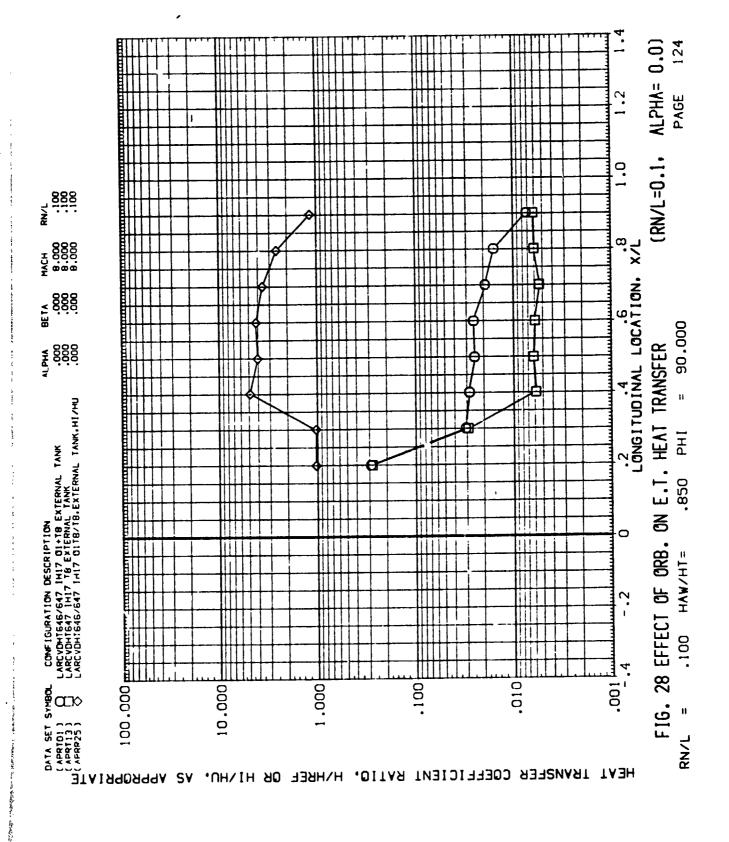




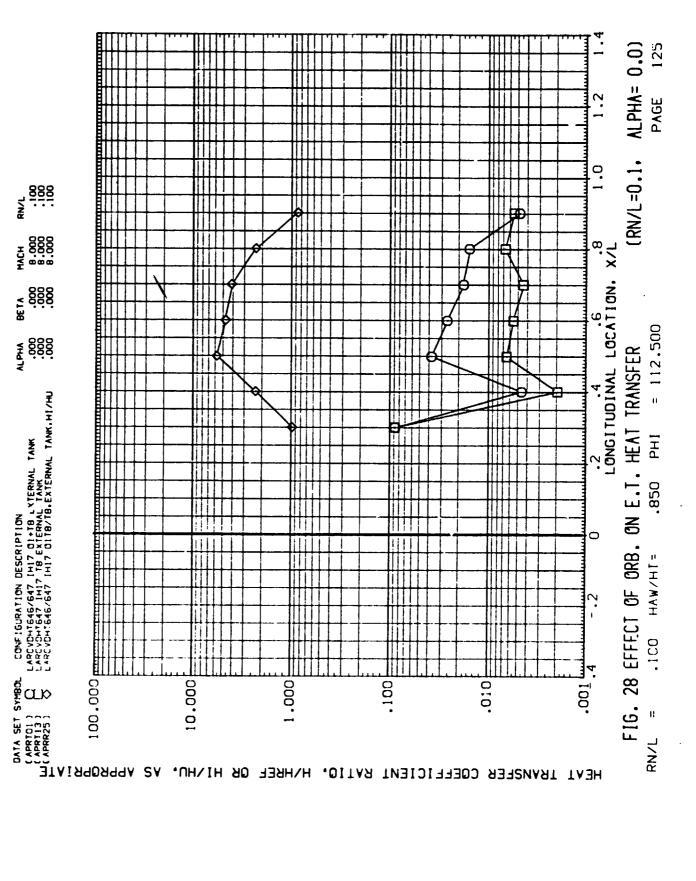


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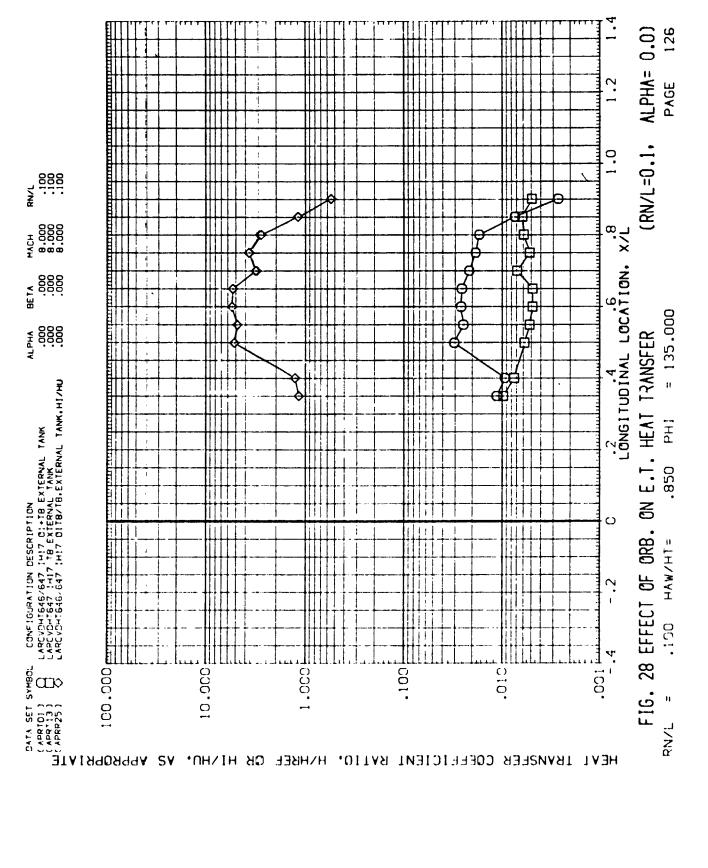


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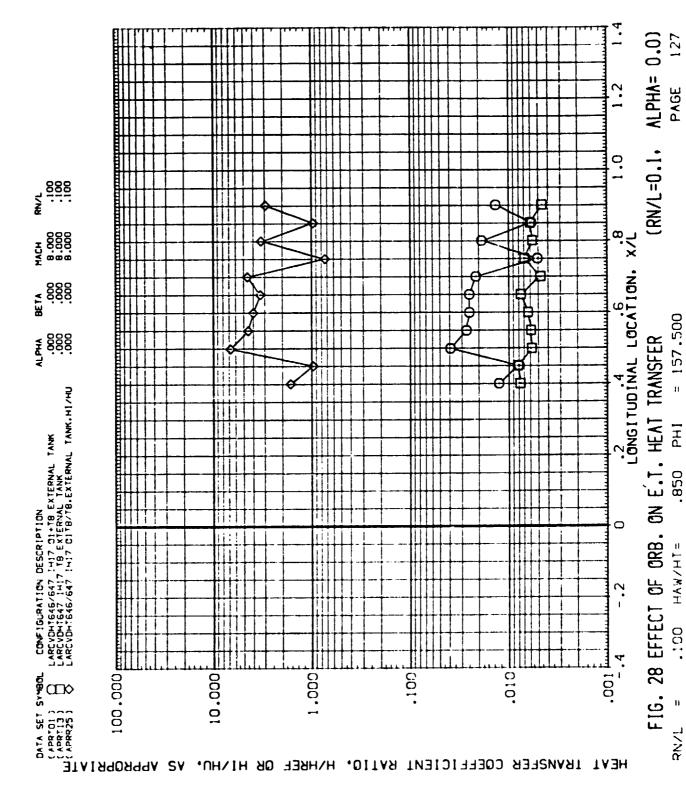


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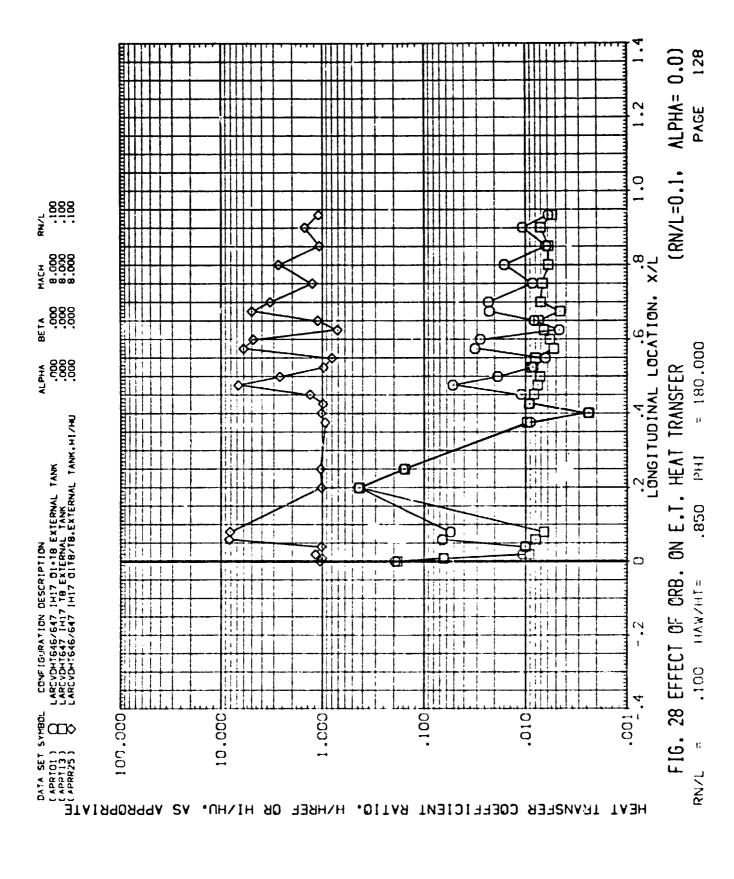
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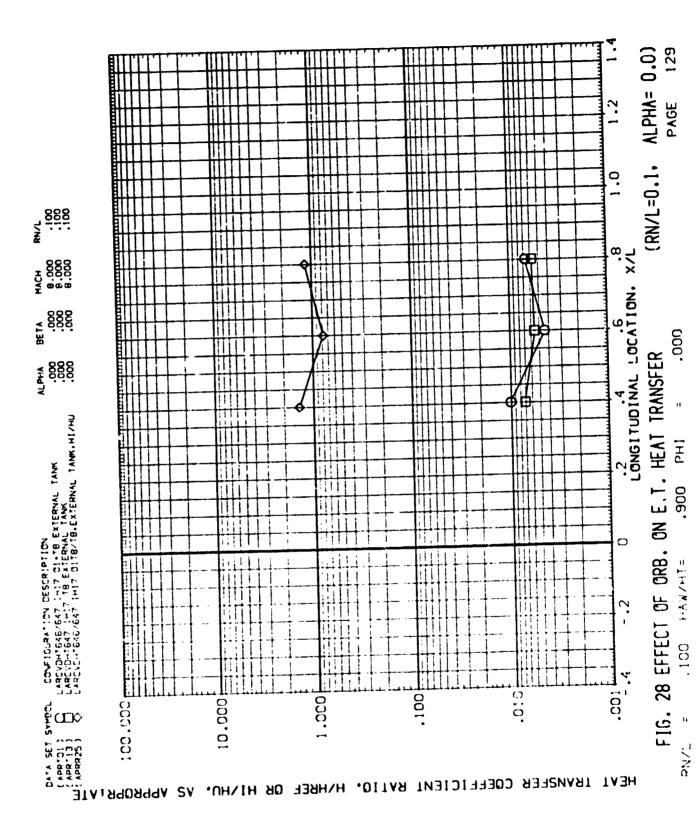


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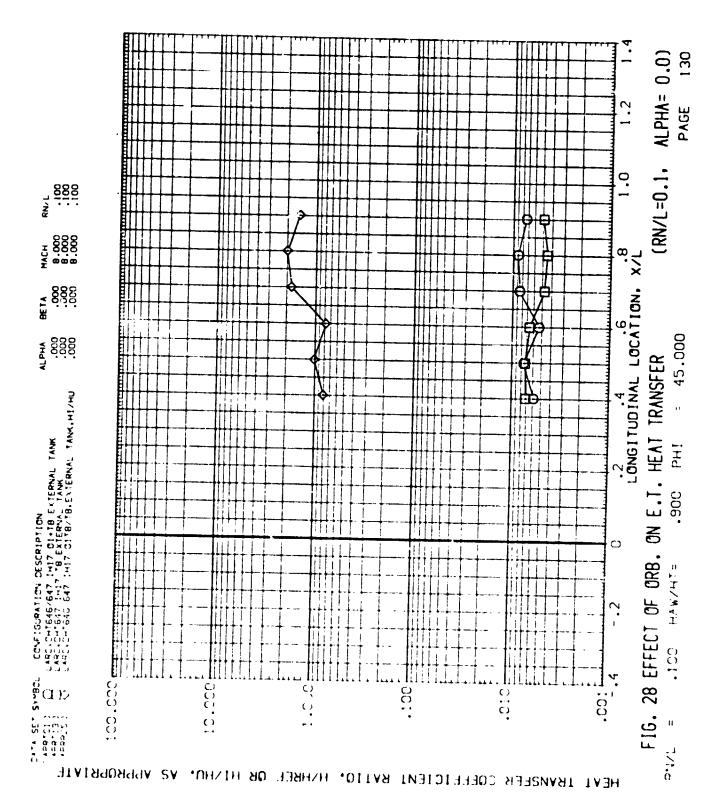
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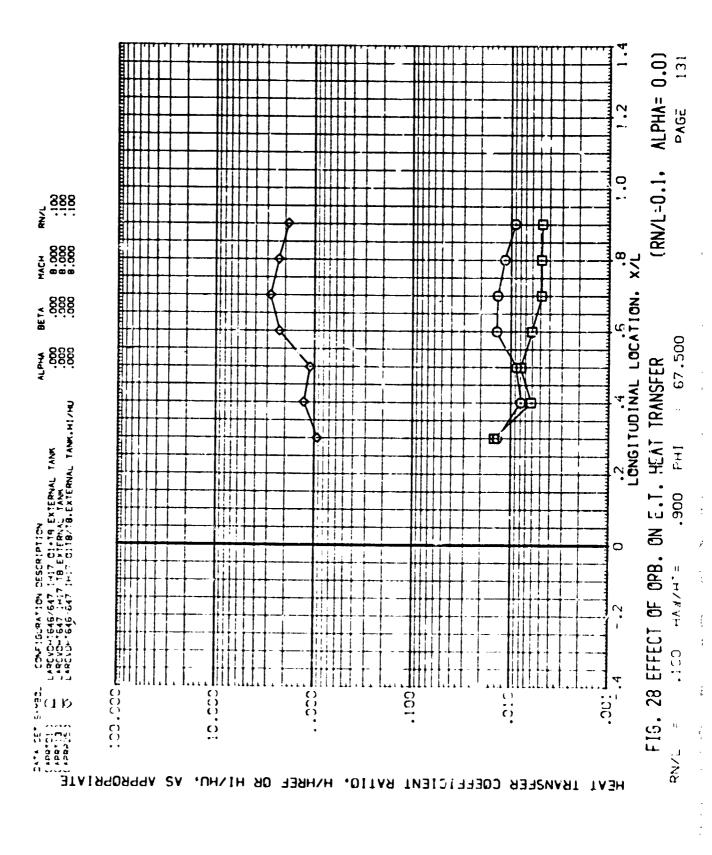
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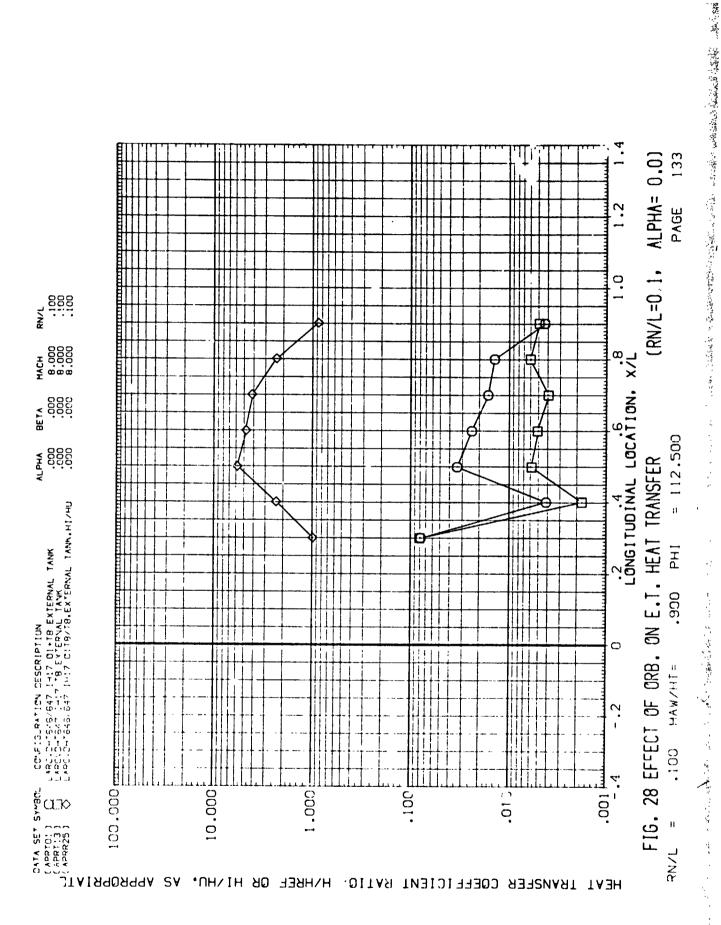
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132 ALPHA= 0.0) PAGE 11 1 (RN/L=0.1, 0. .2 .6 .8 LONGITUDINAL LOCATION, X/L 90.000 1 ALPHA .000 .000 H E.I. HEAT TRANSFER CONFIGURATION DESCRIPTION
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LARCVOHTG47 1H17 1B EXTERNAL TANK E H d 0 111 8 Ī \bigcirc FIG. 28 EFFECT OF ORB. HAW/HI= .100 Ř Œ 1.000 .100 .010 .001 000.00. 10.000 HEAT TRANSFER COEFFICIENT RATIO, HAHREF OR HIVHU. AS APPROPRIATE

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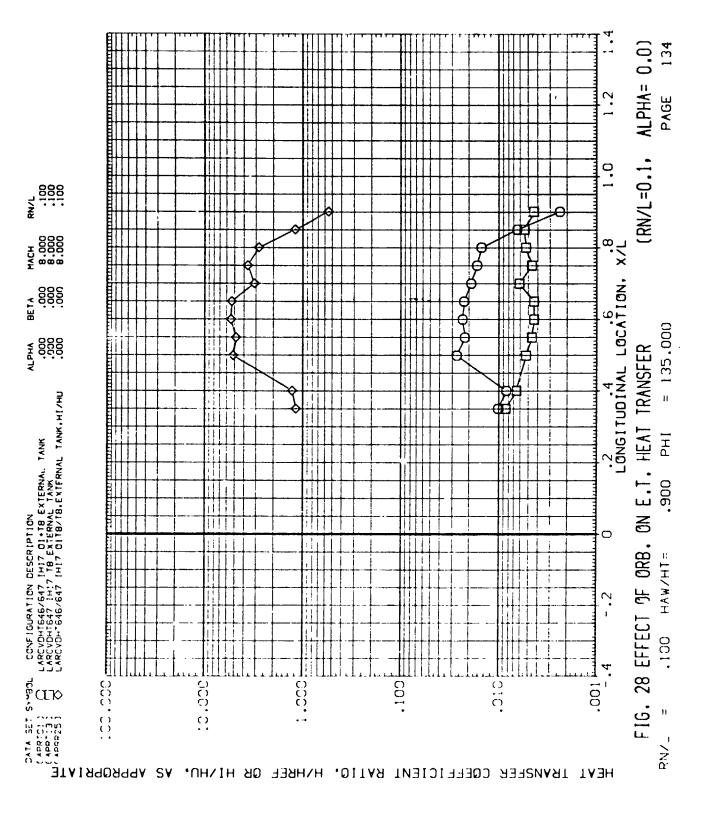
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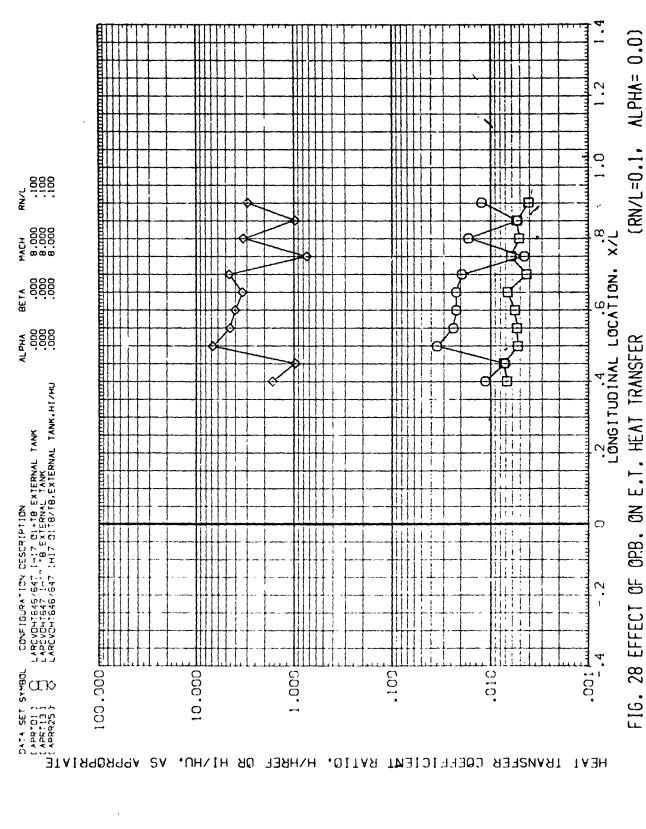


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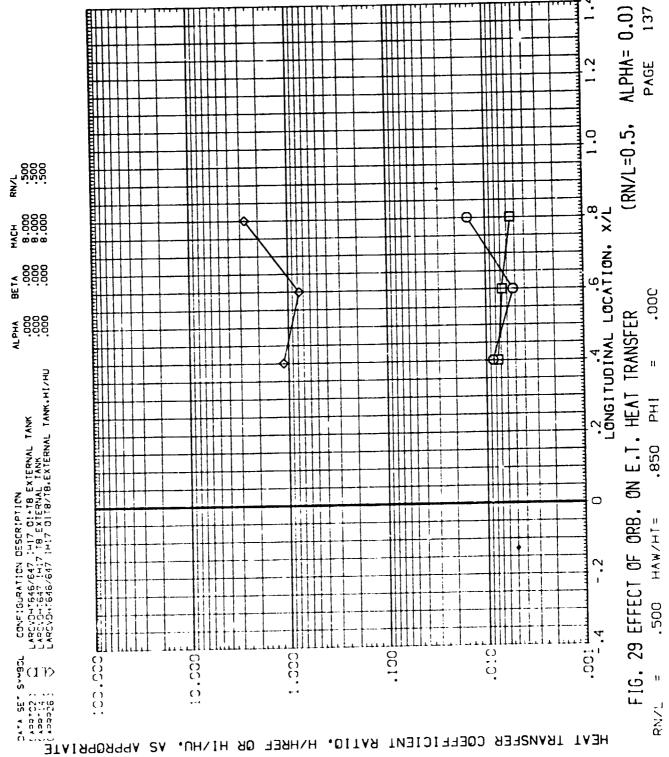
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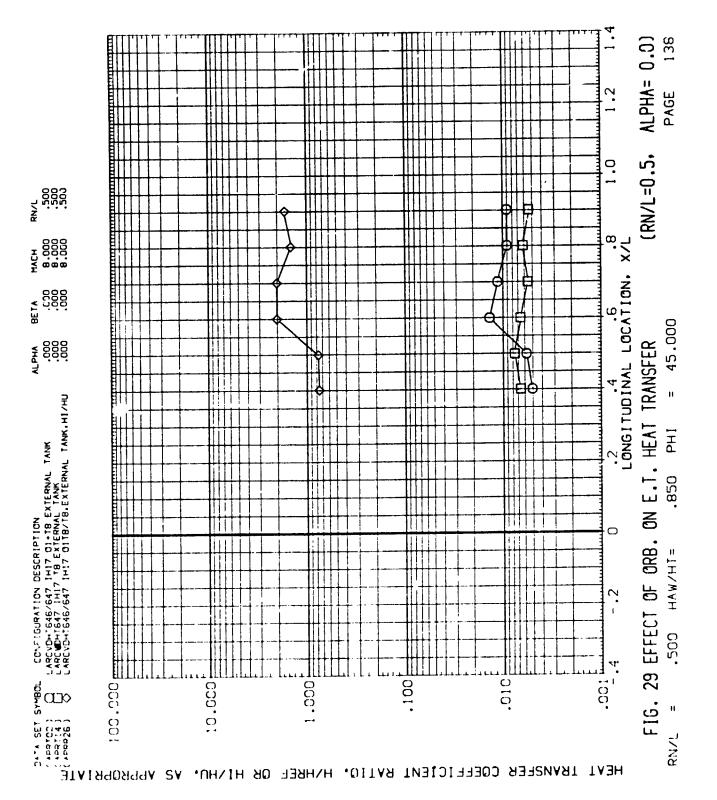
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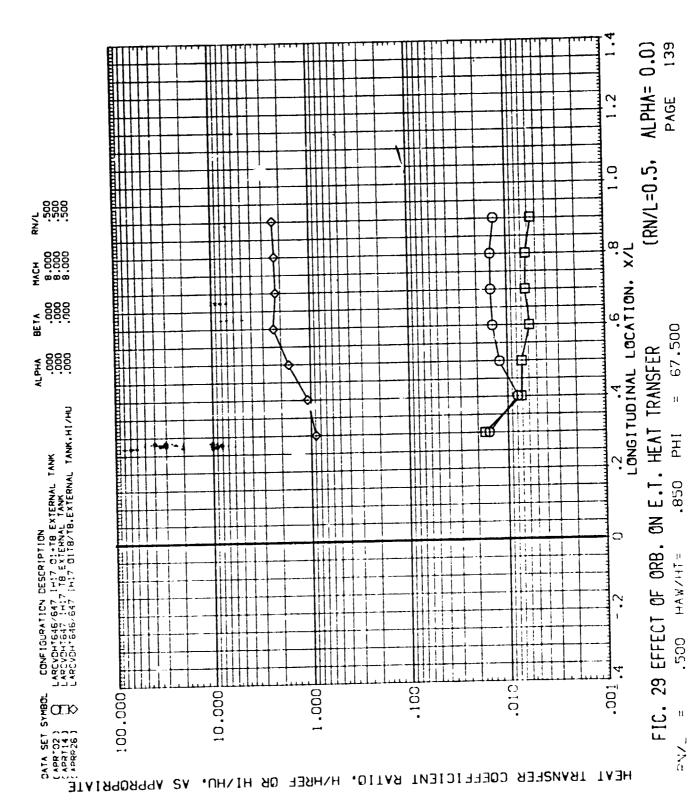
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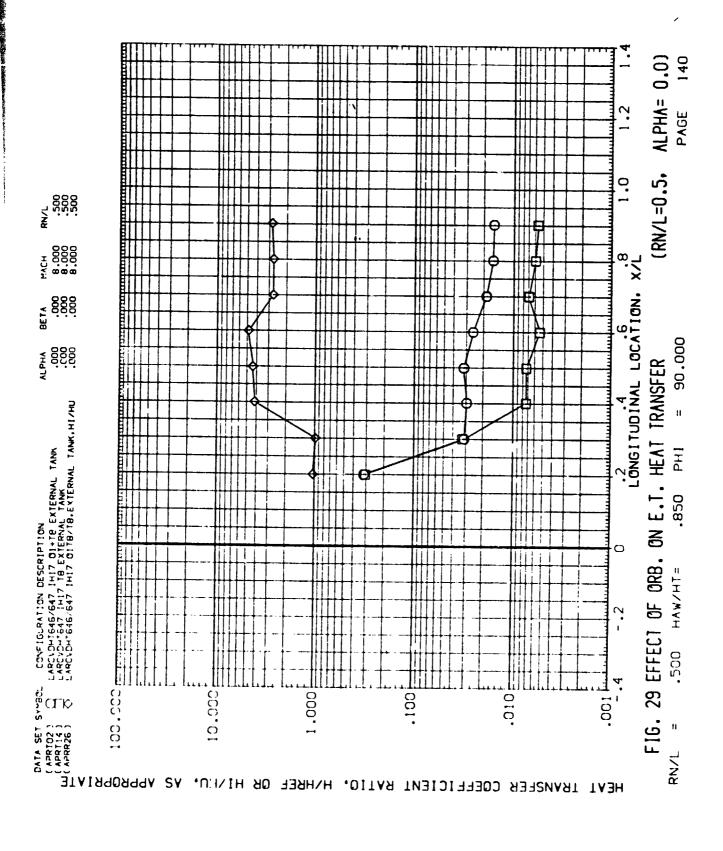


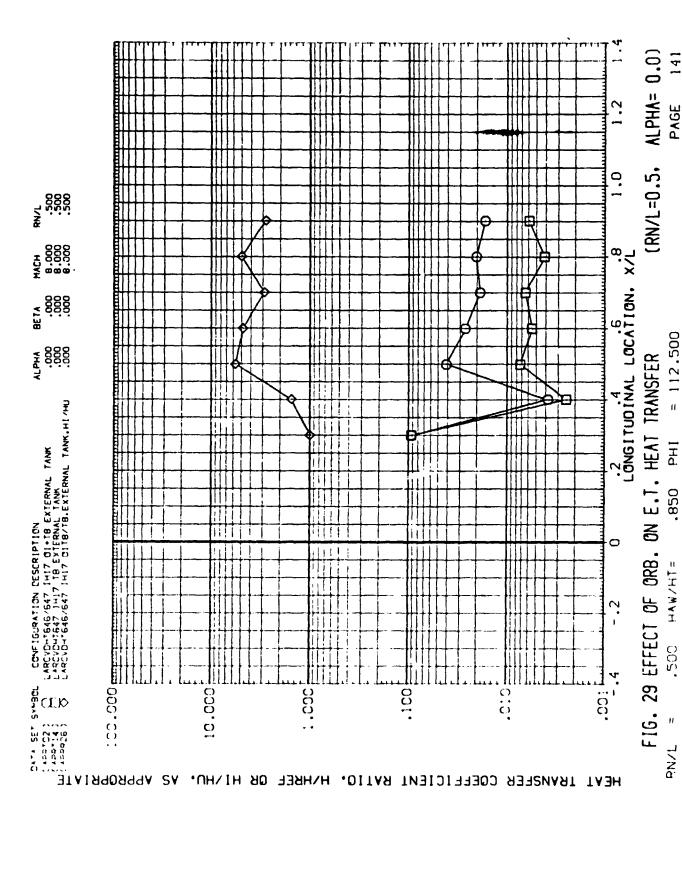
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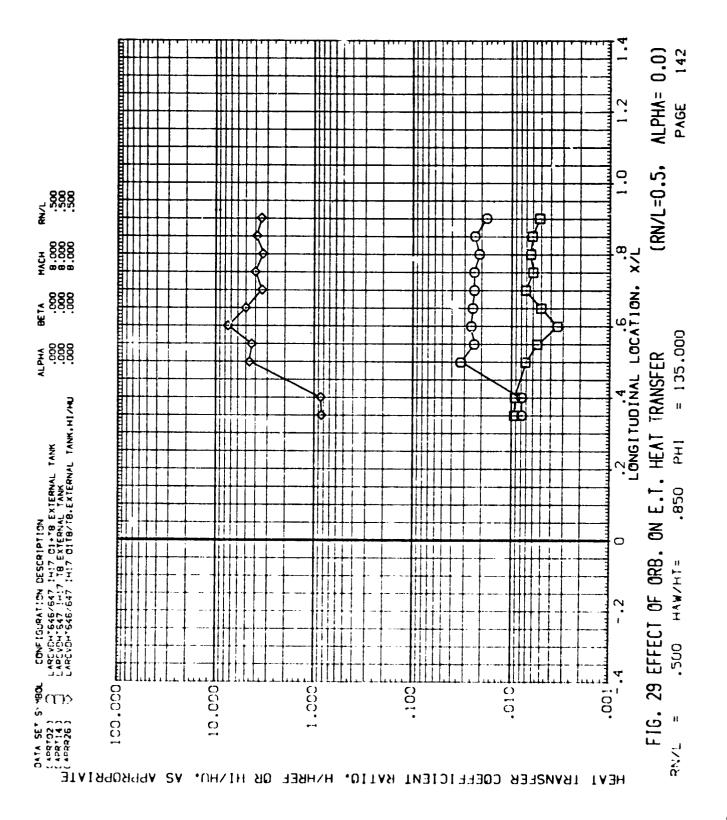
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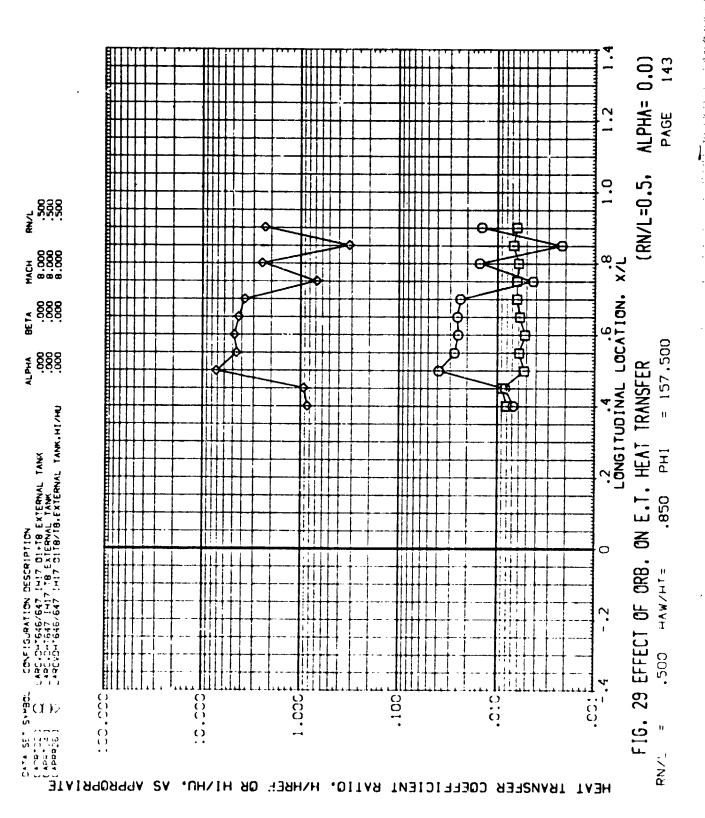




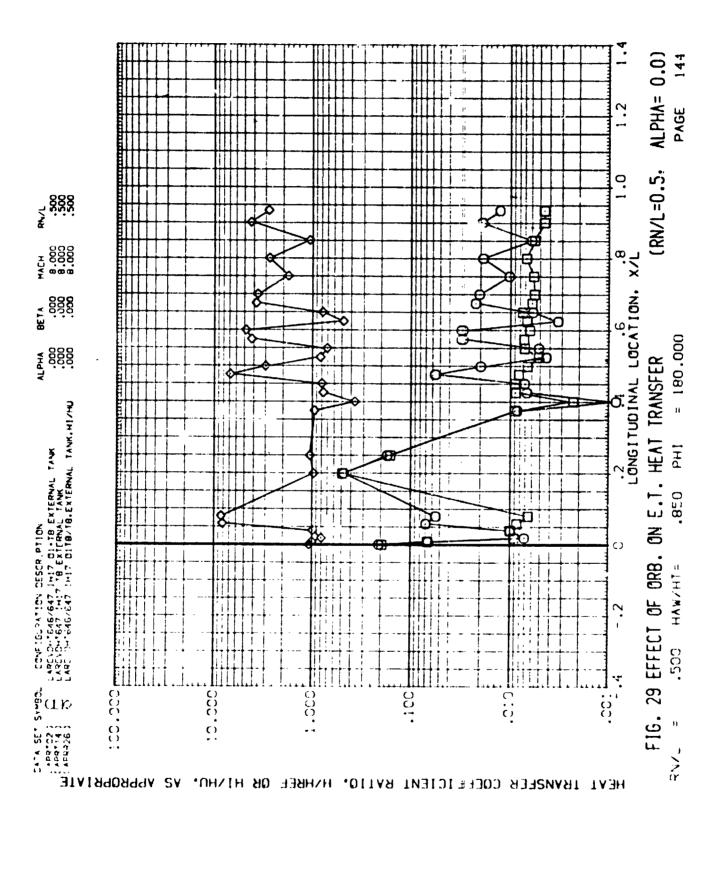
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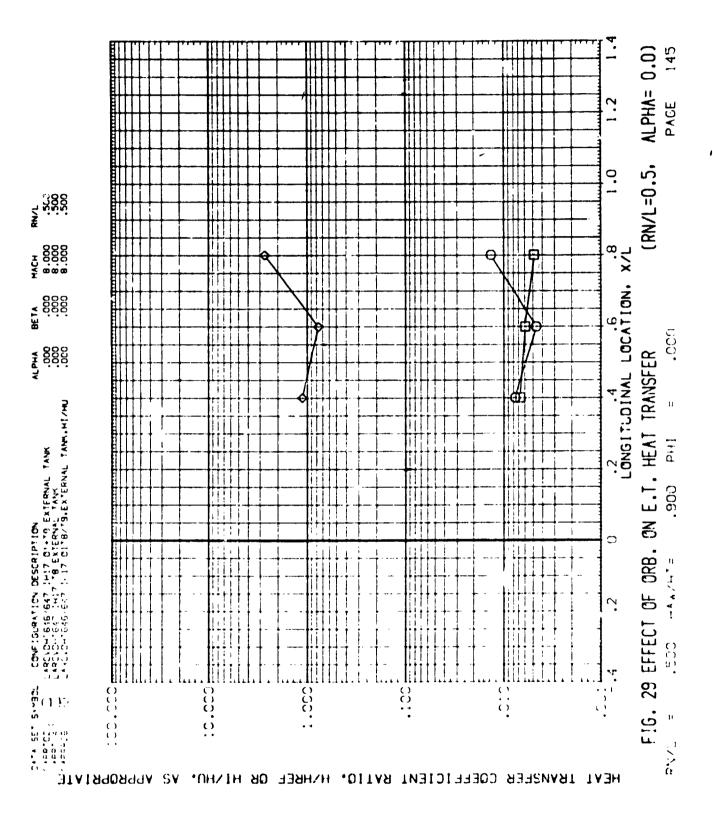


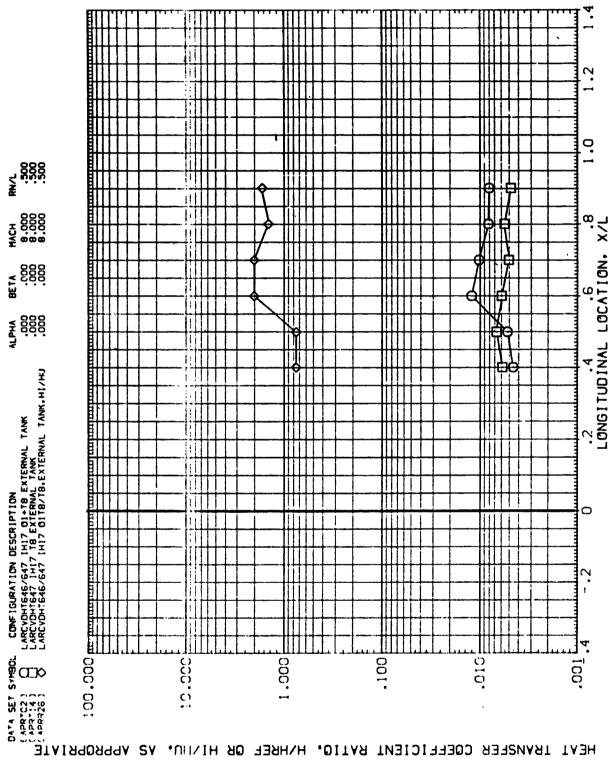
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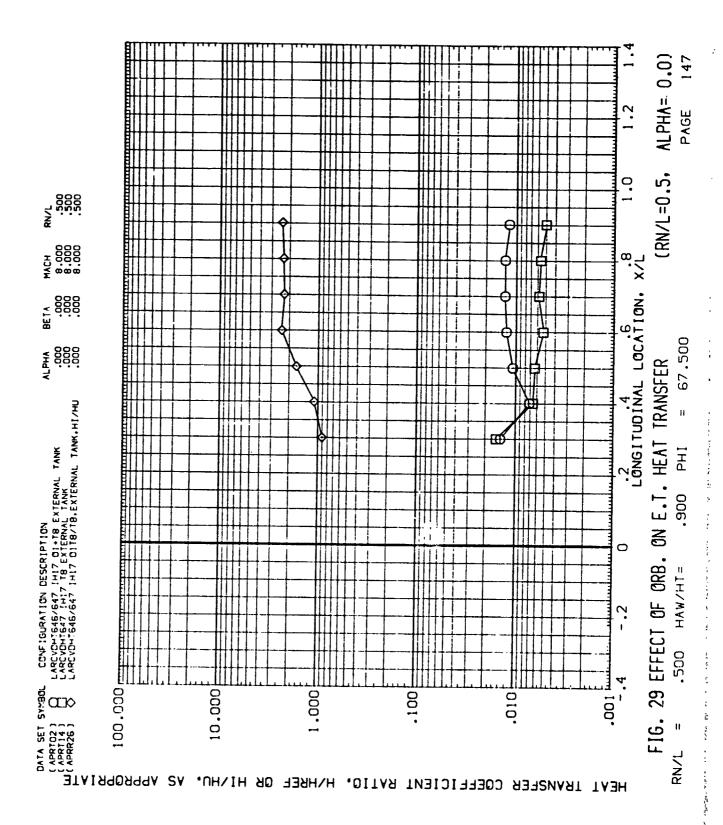
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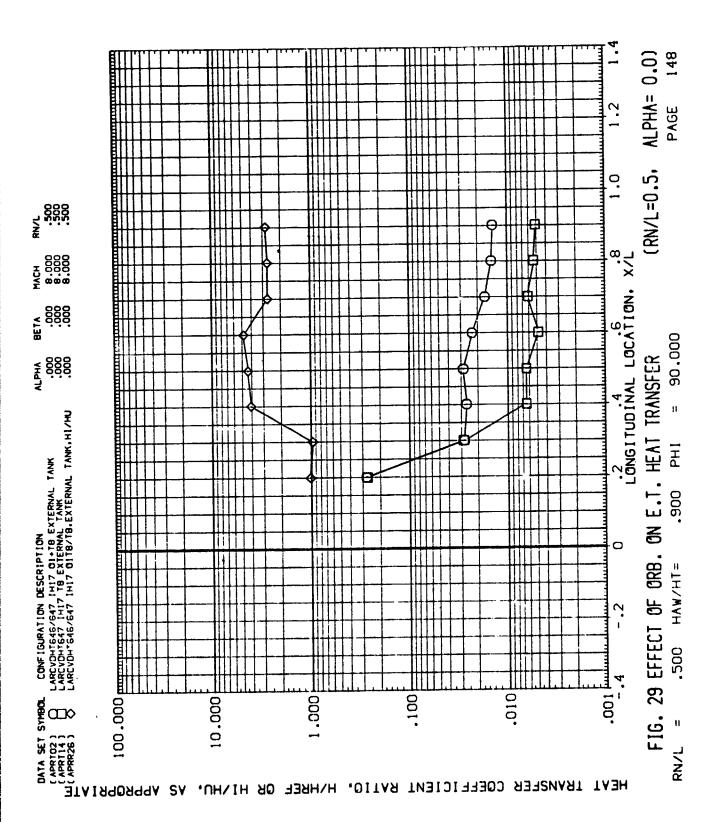




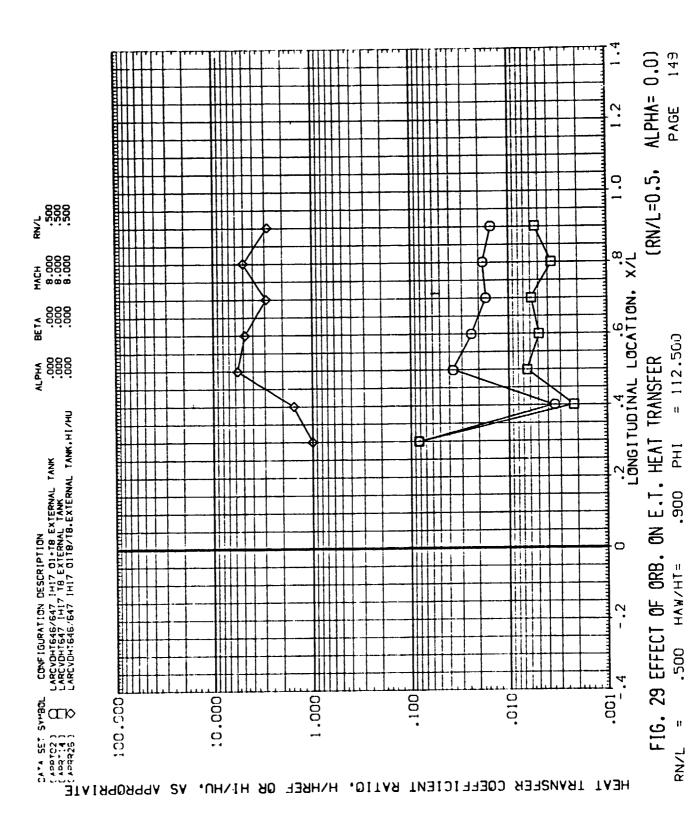
45.000 FIG. 29 EFFECT OF ORB. ON E.T. HEAT TRANSFER

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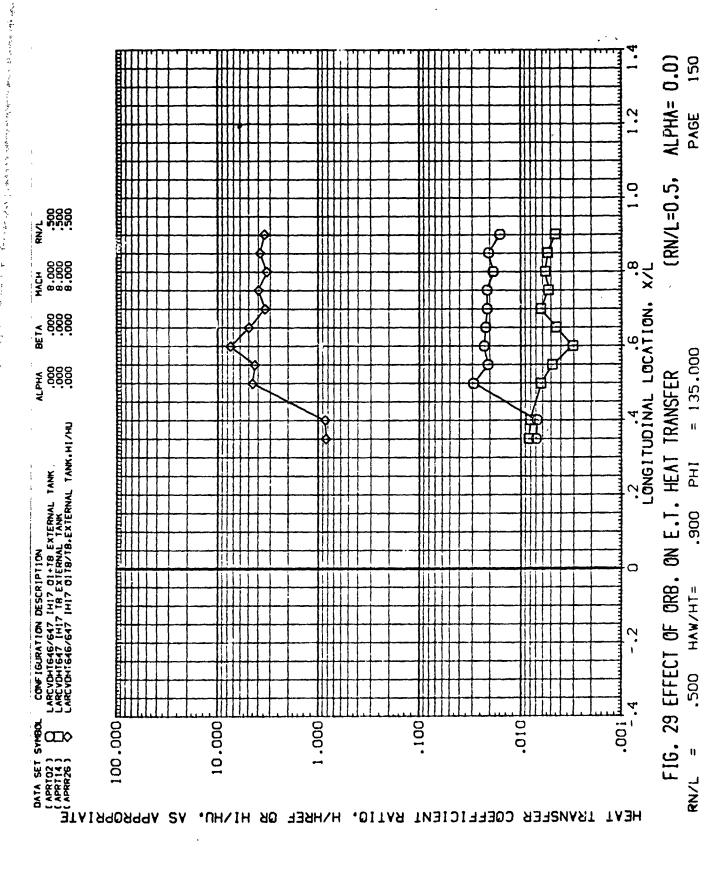
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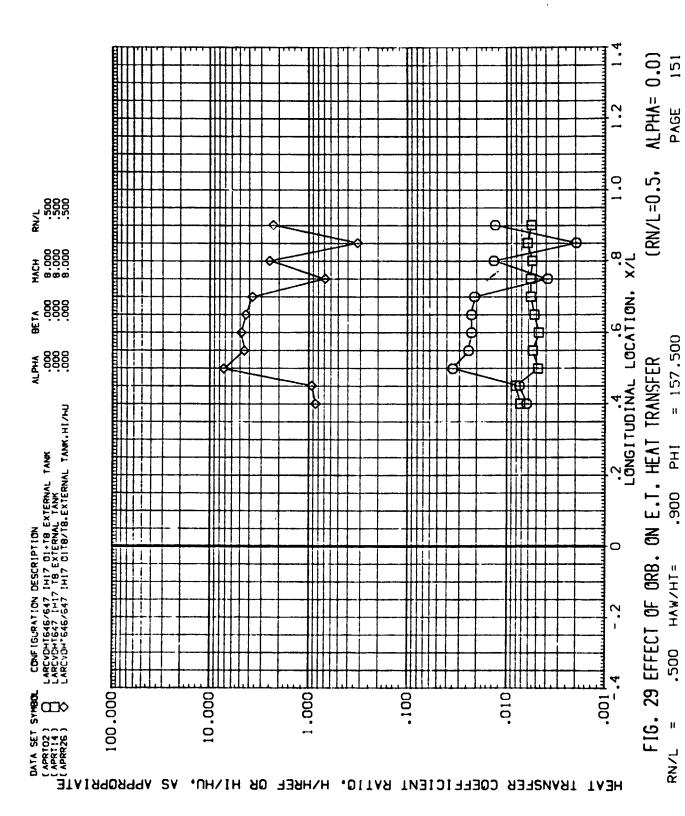


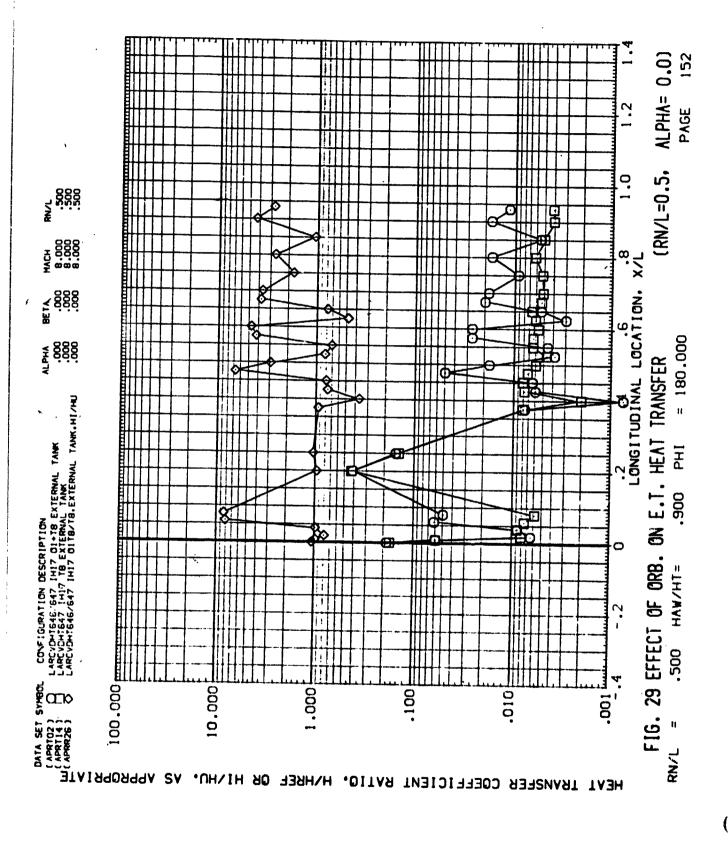
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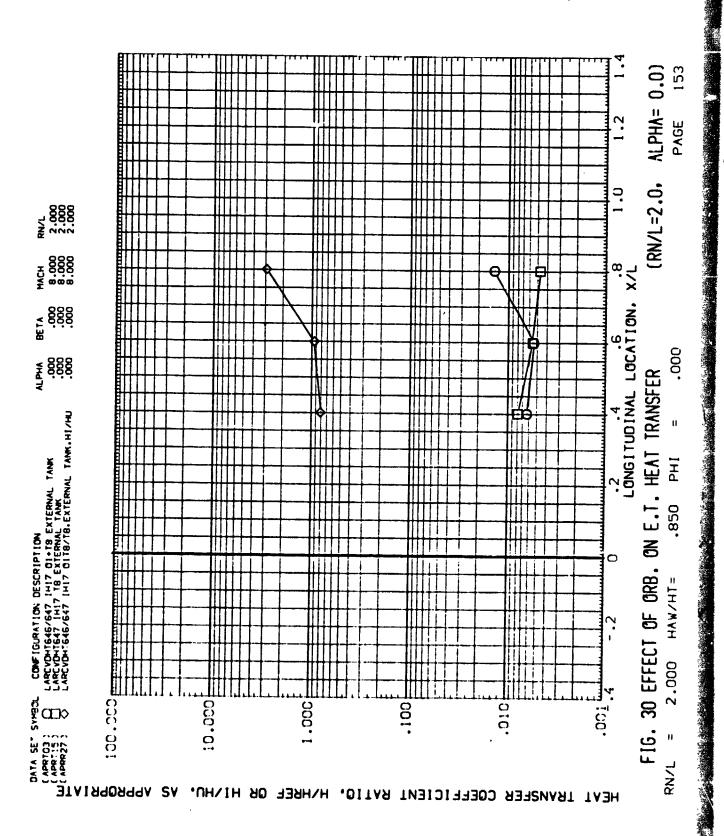
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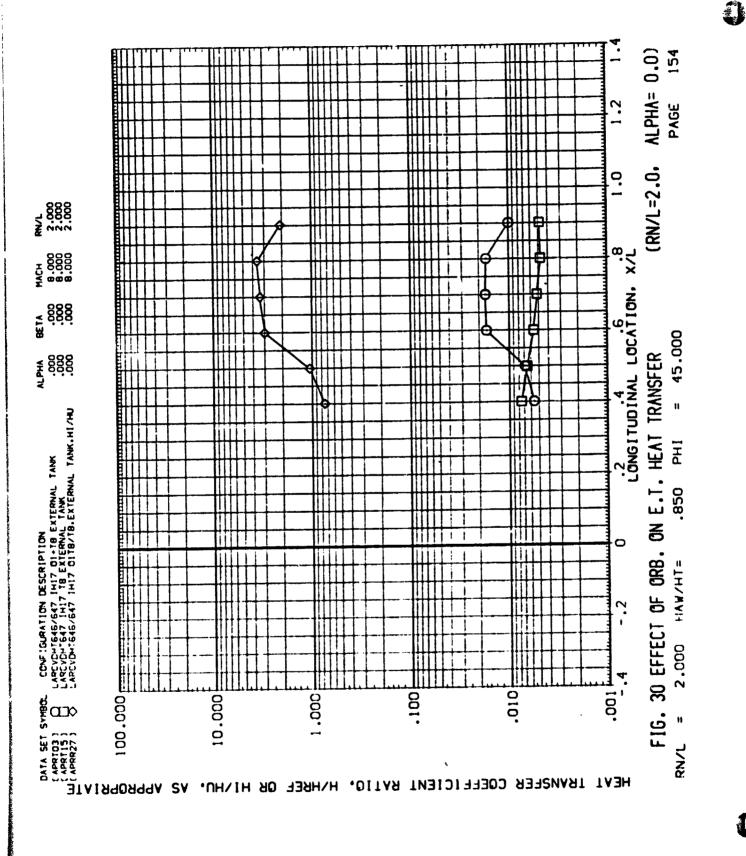


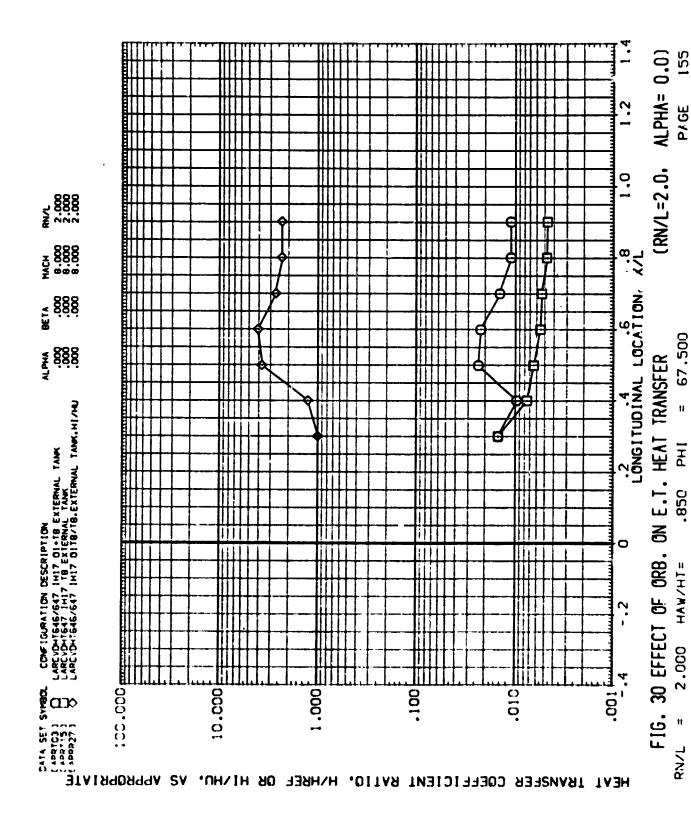






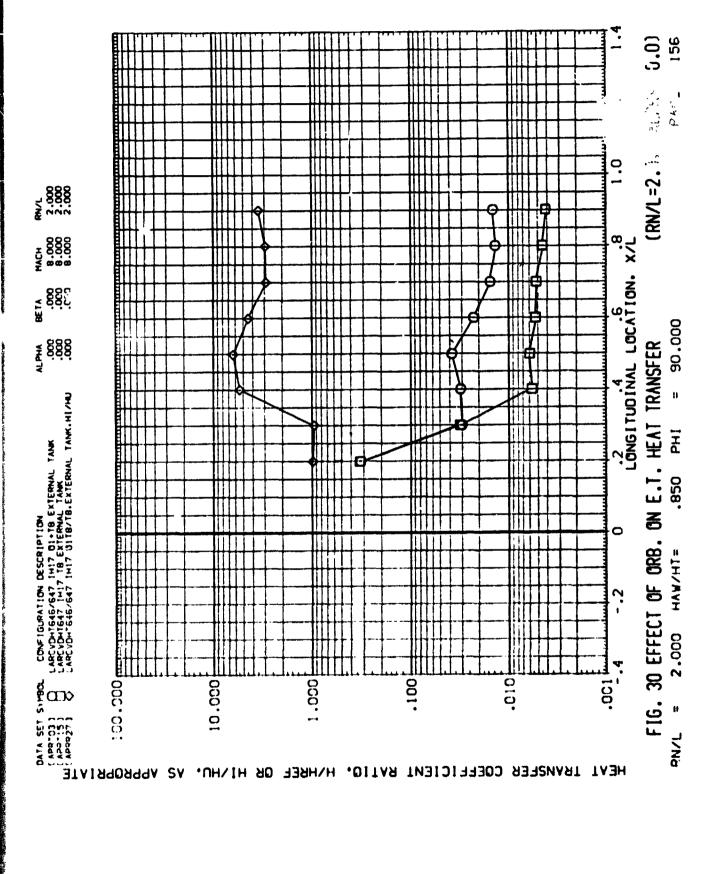
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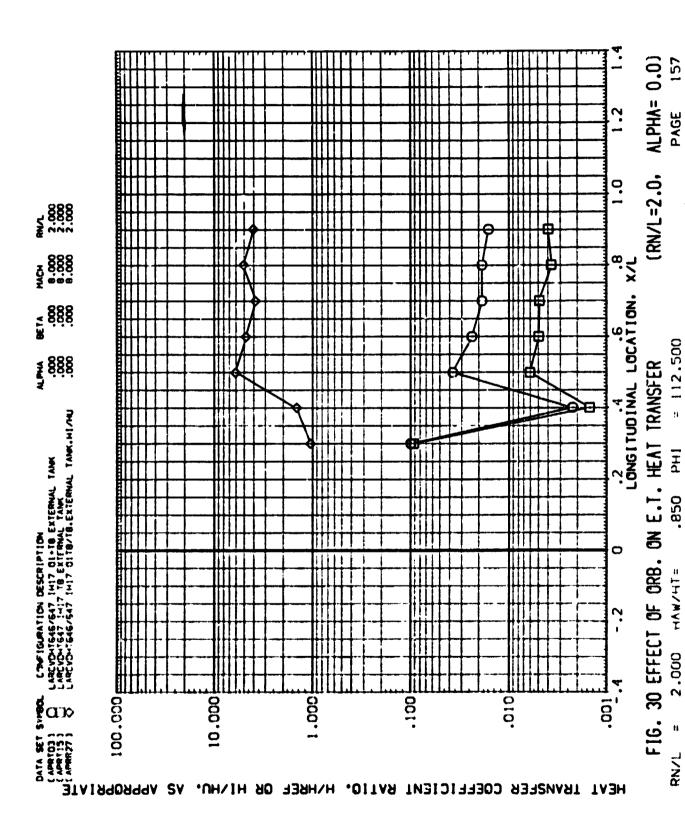




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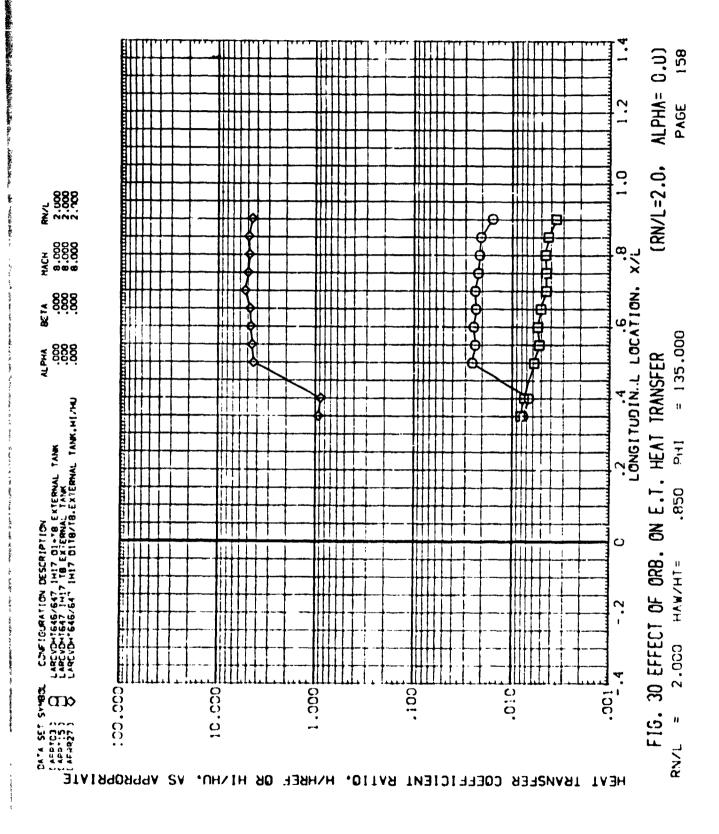
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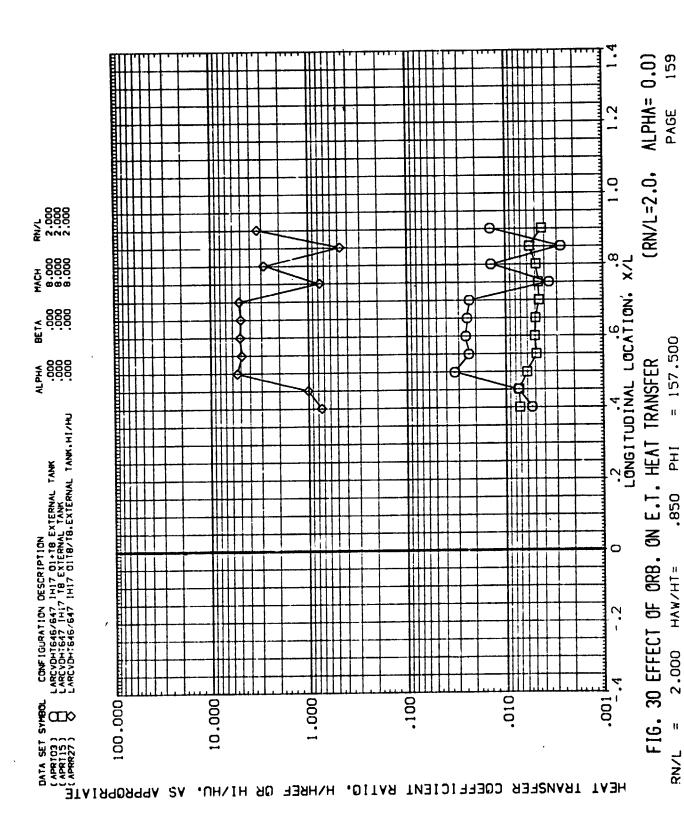


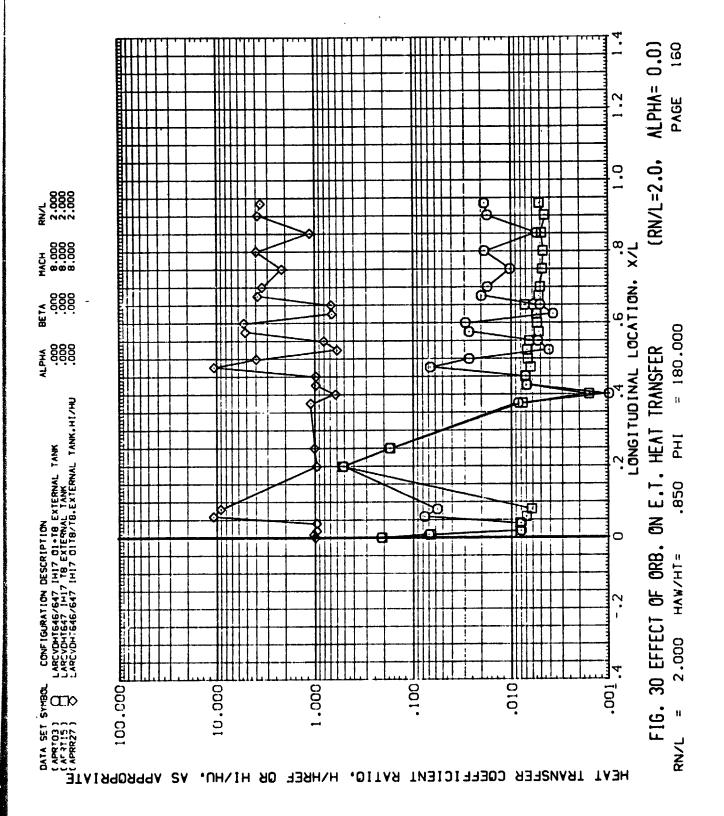


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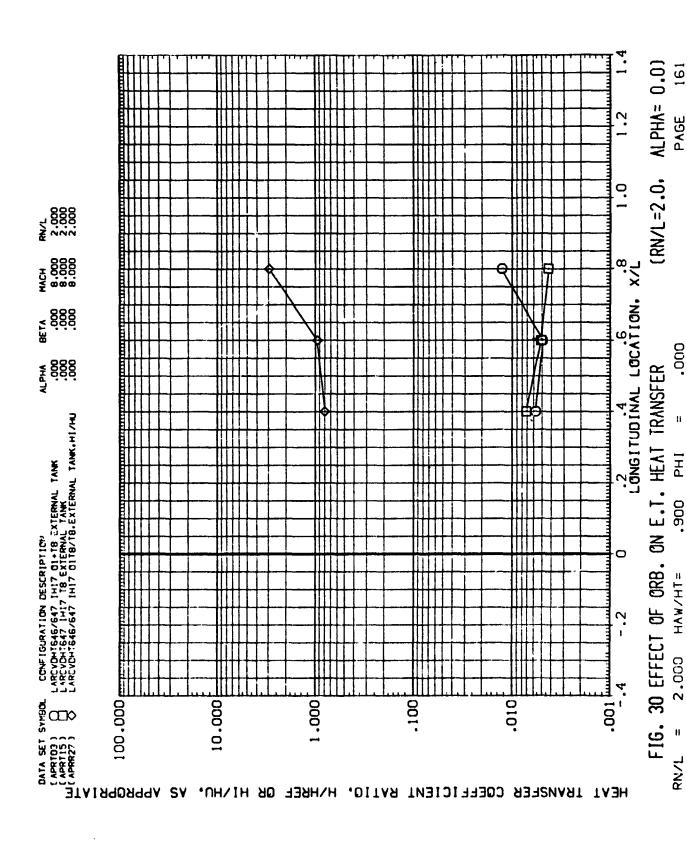


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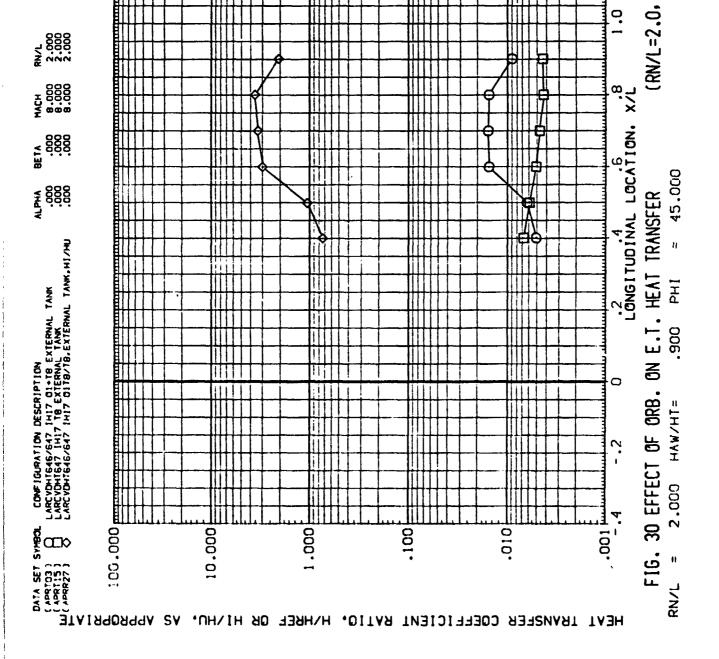
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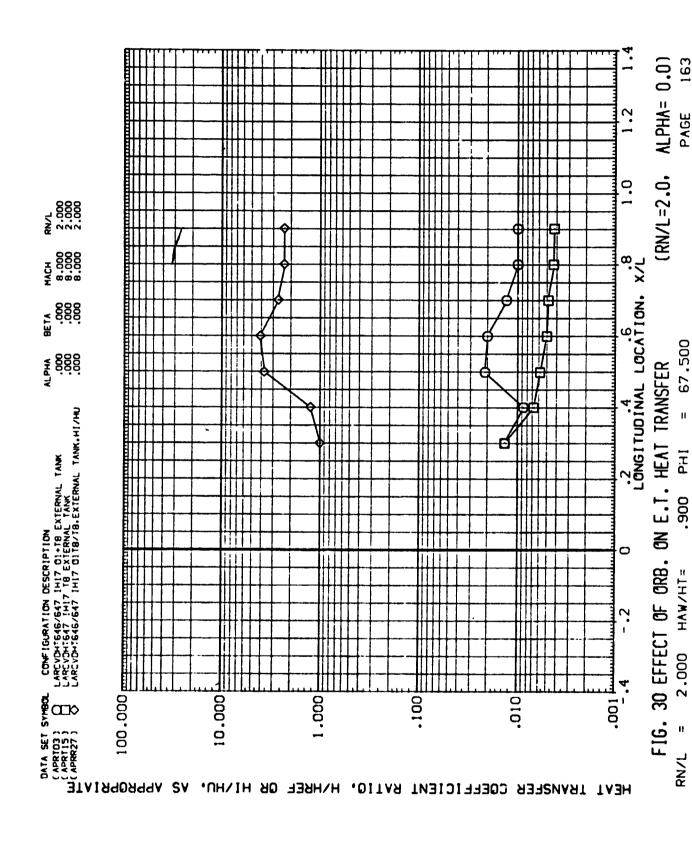
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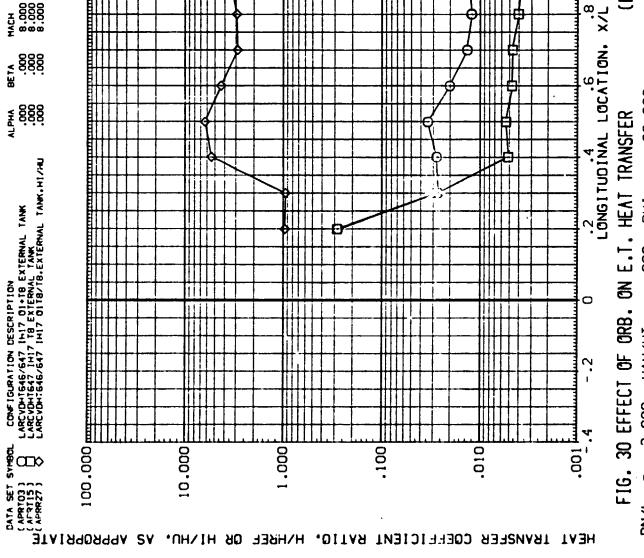


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PAGE 162





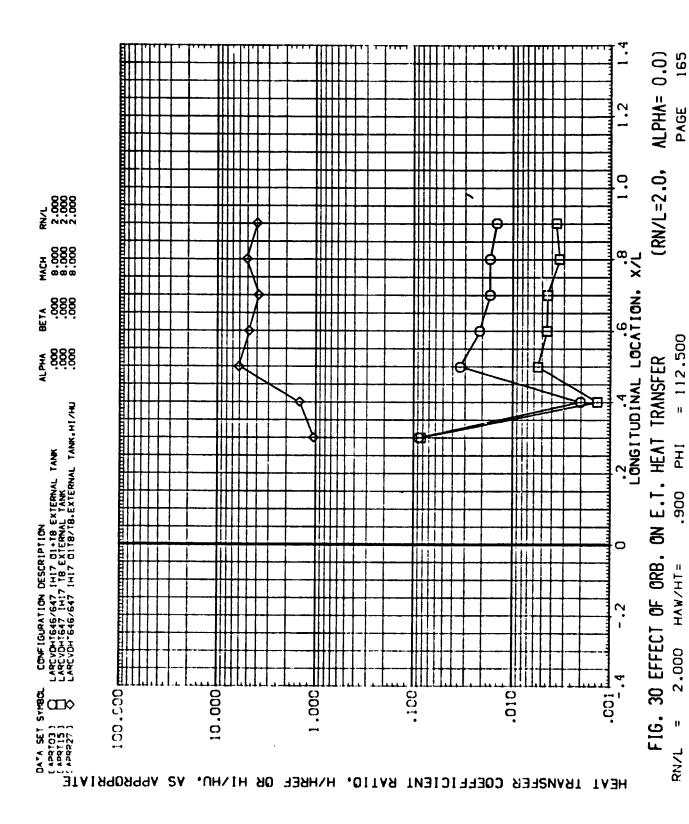
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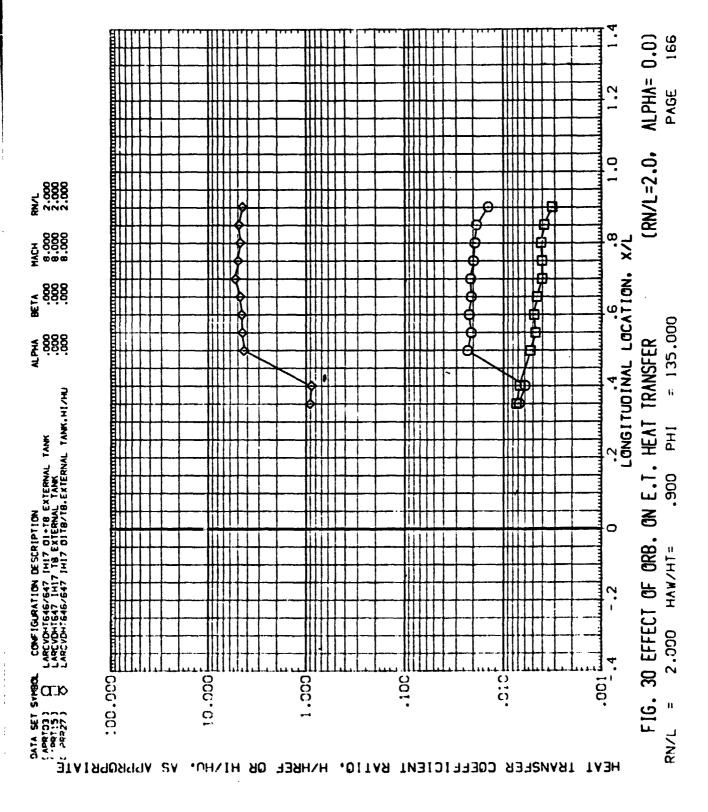
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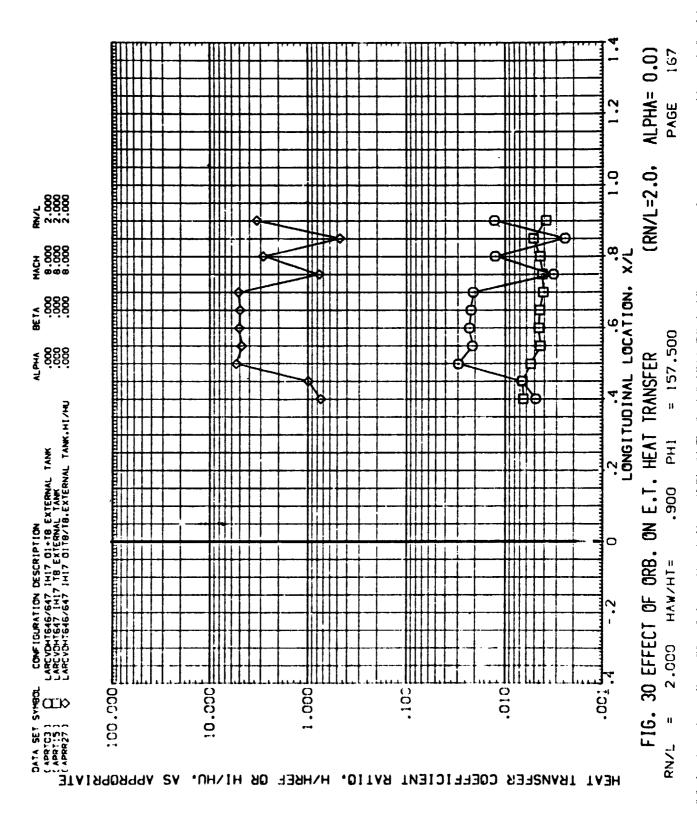


いましています。「おき、大きないこと、これのままで、これできるから、これのできるないないないないできないということになっています。」ということは、これには、これのできるないできない。

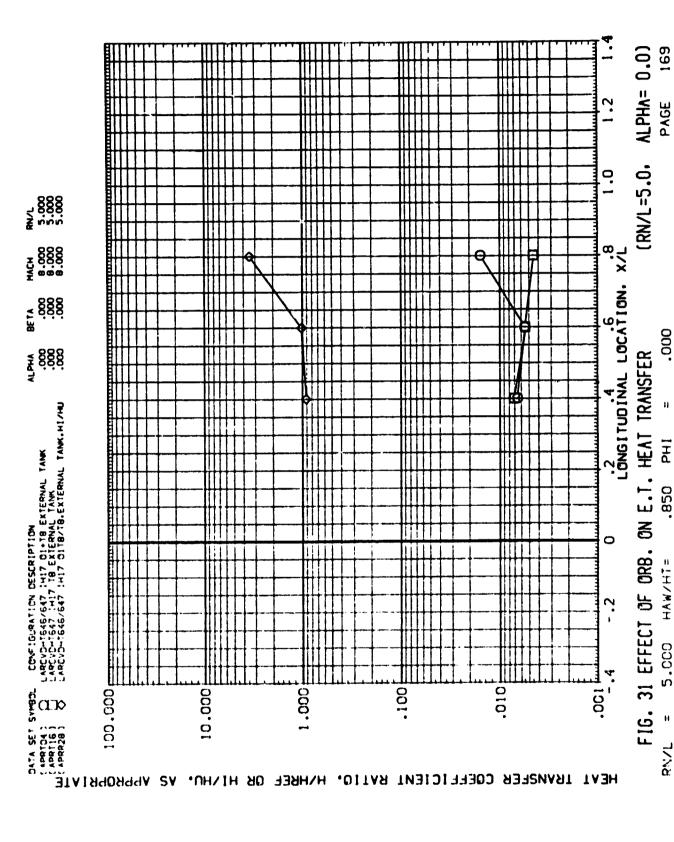


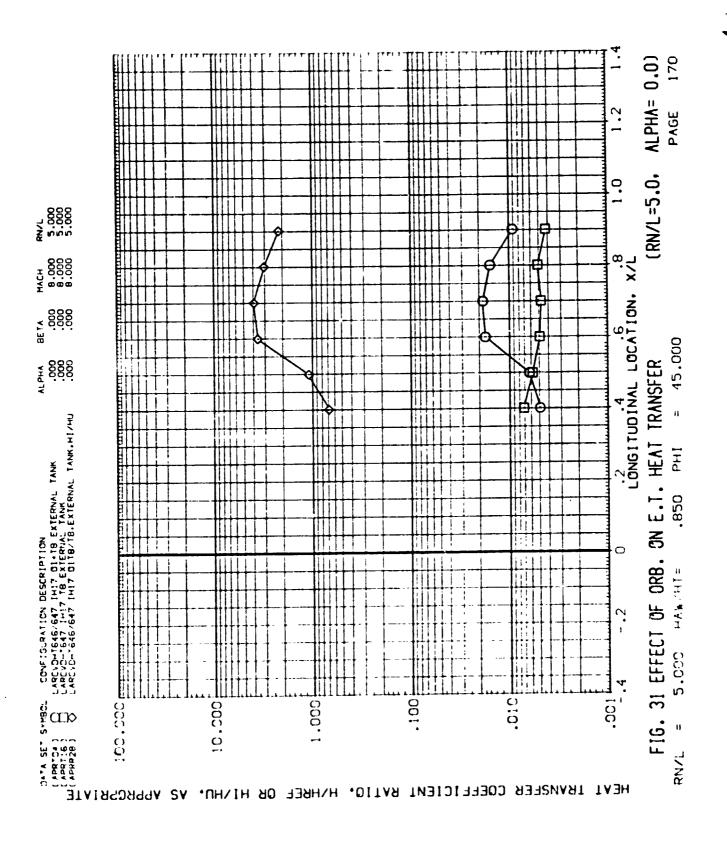
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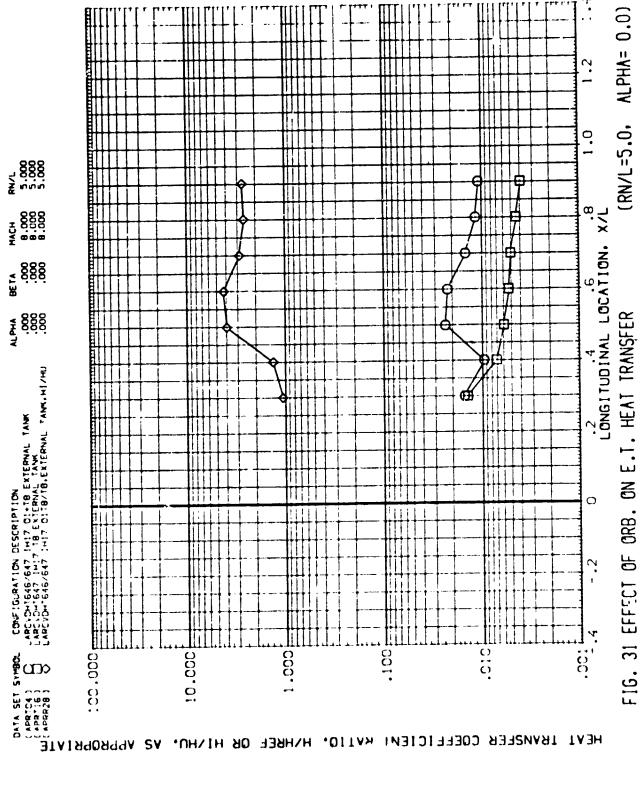


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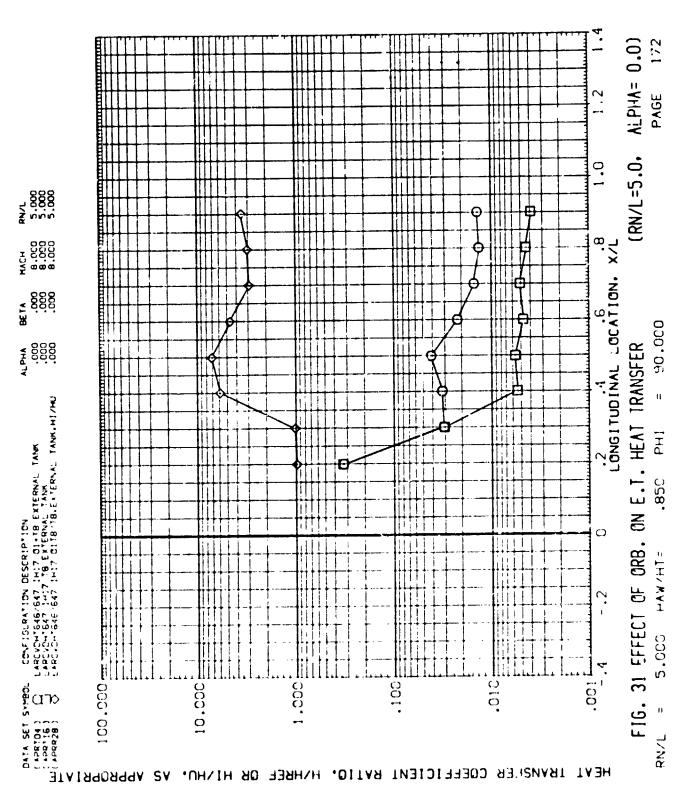
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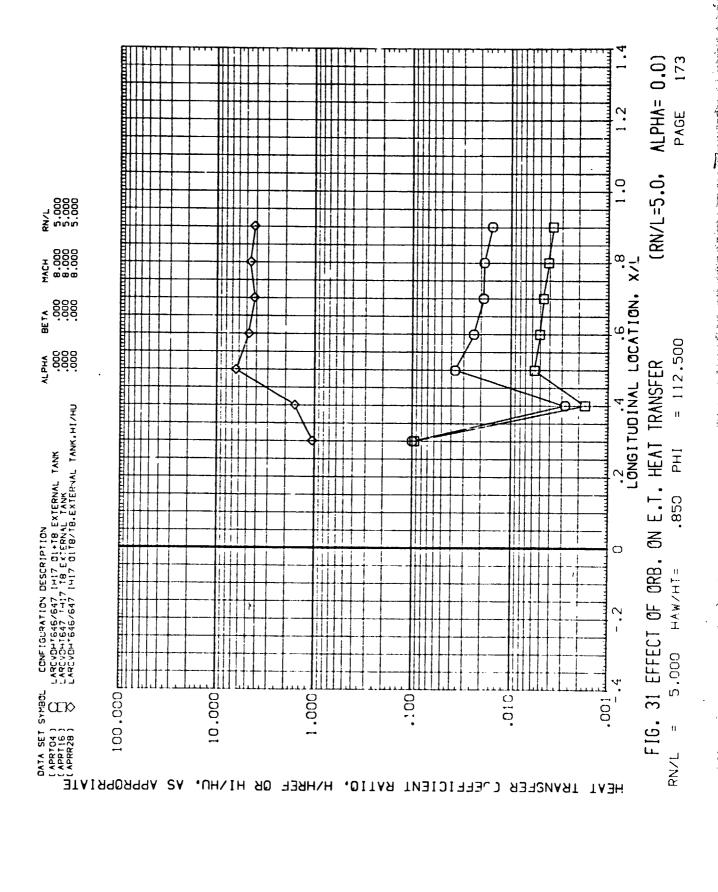
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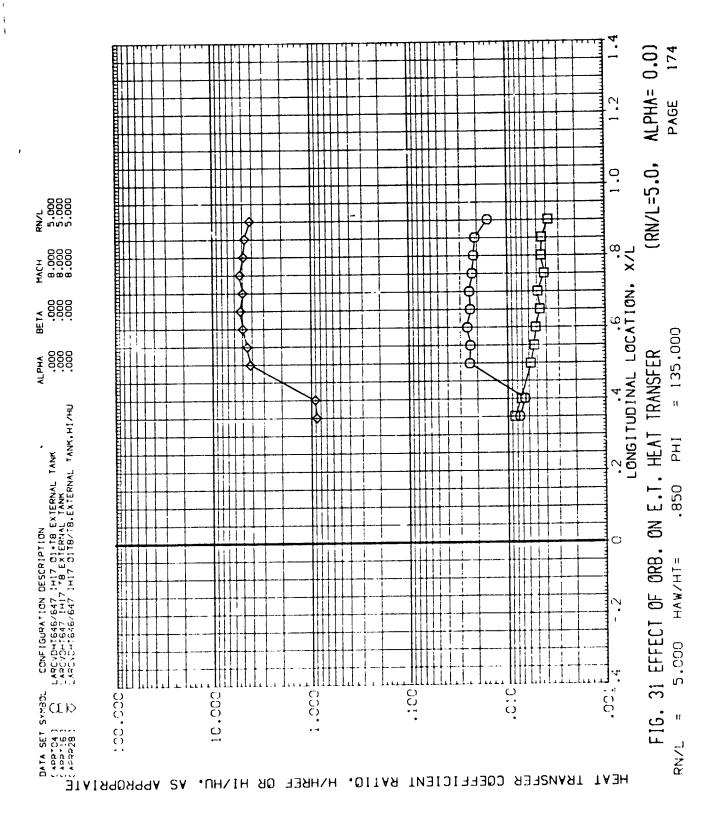
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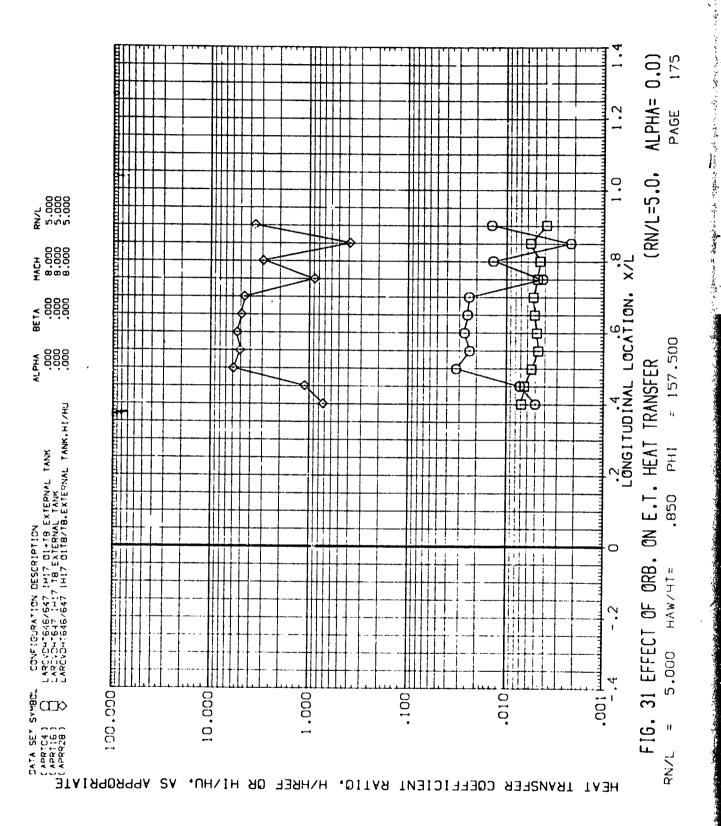
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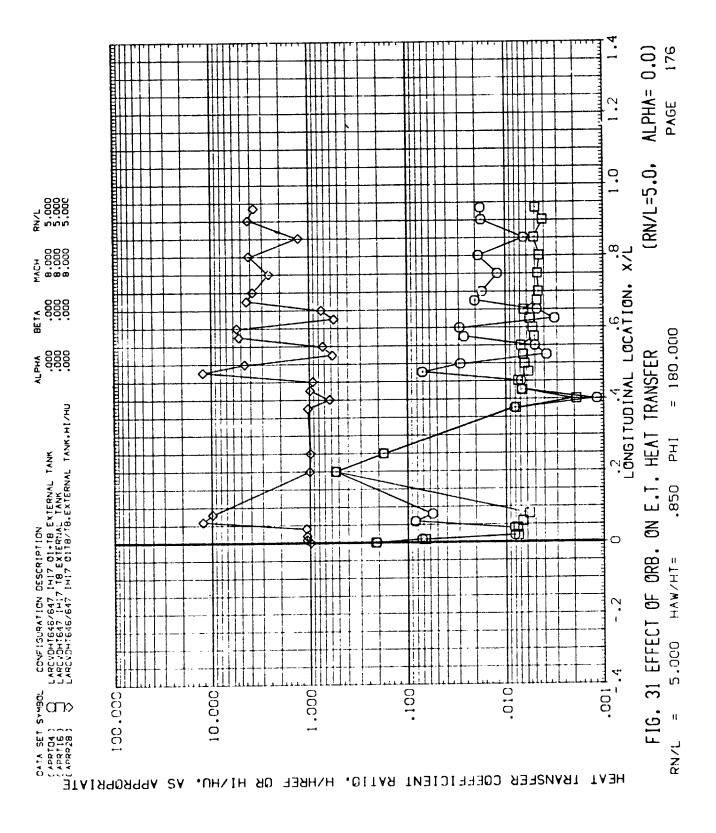


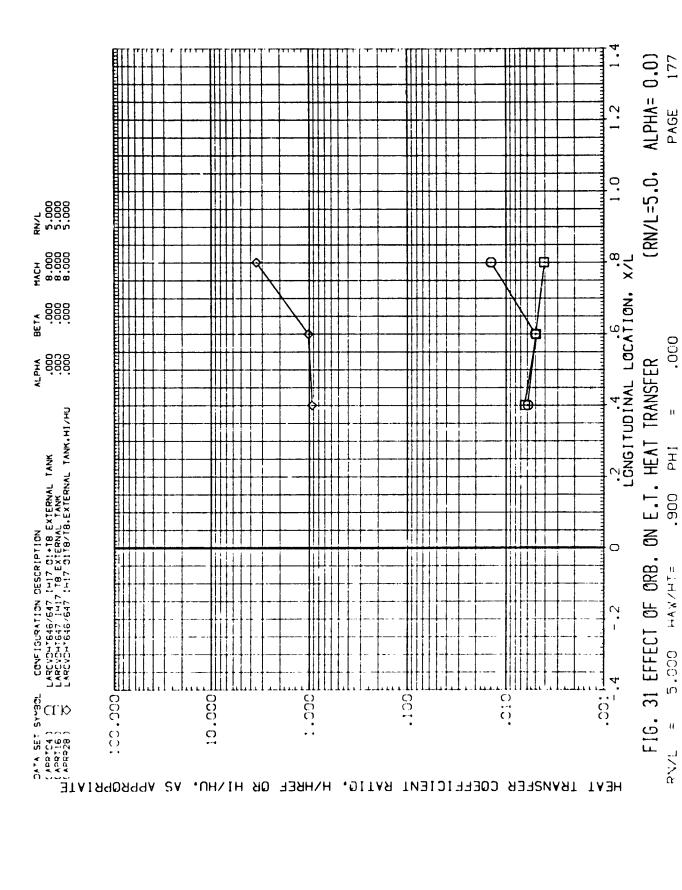
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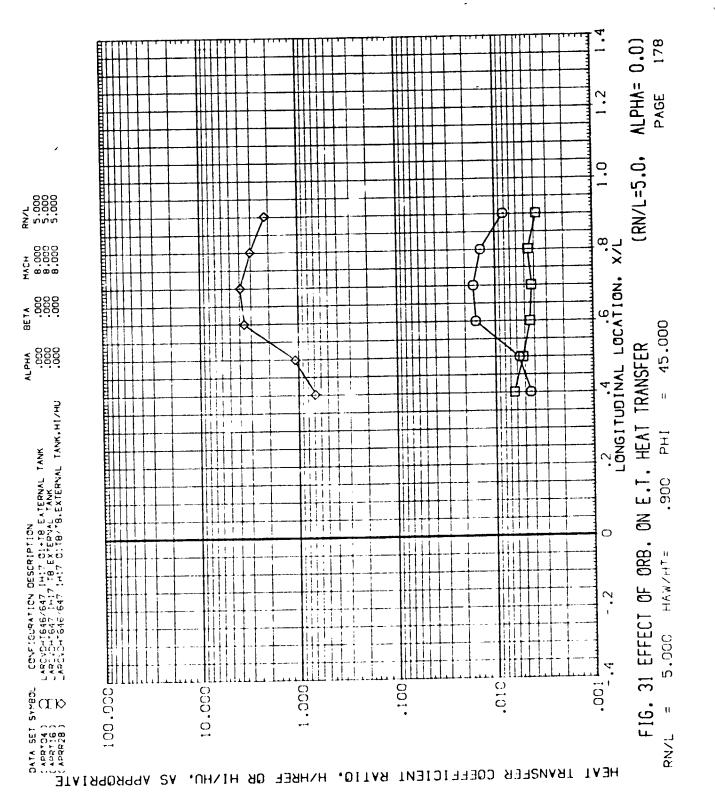
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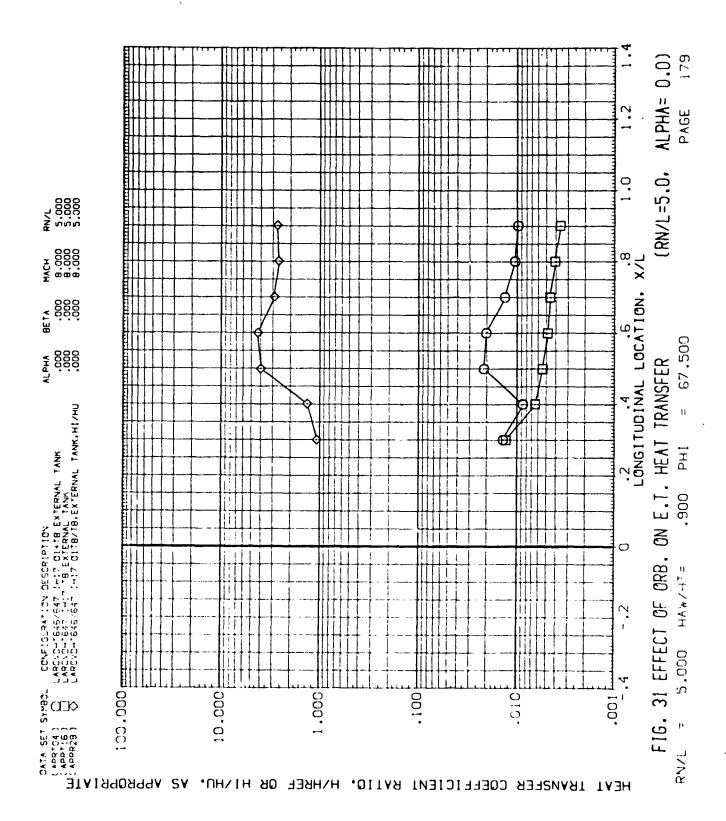
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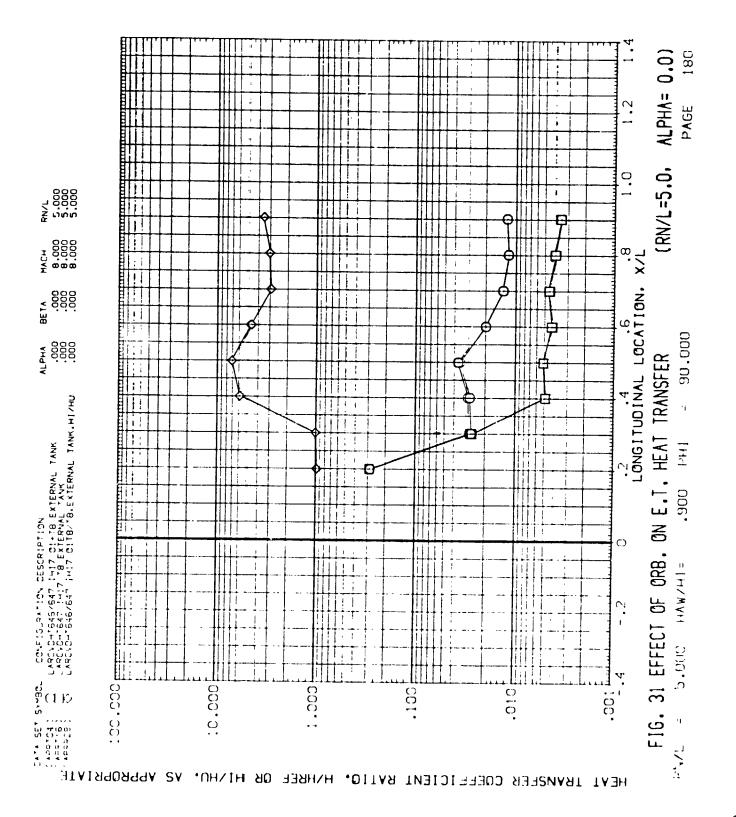


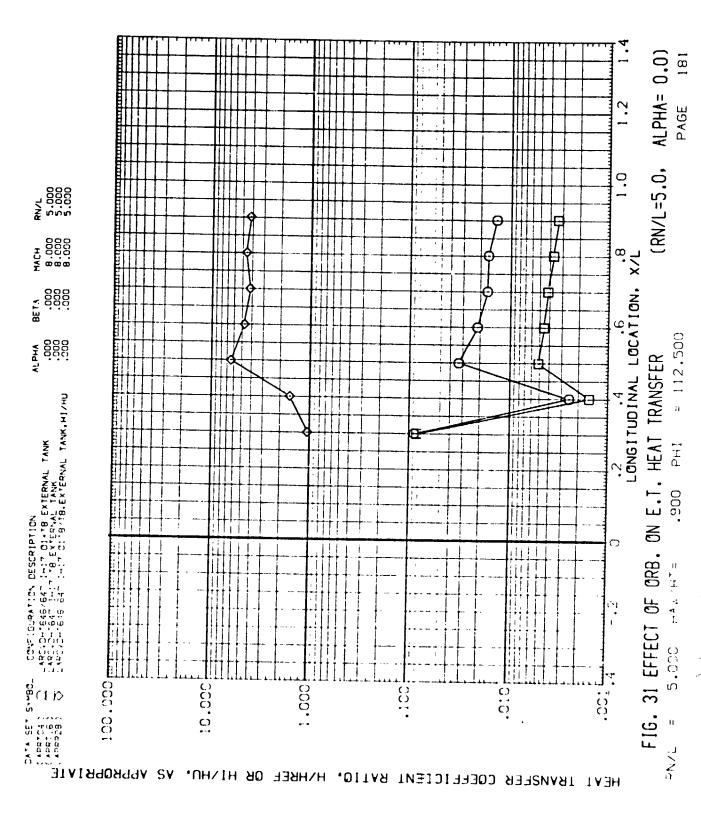


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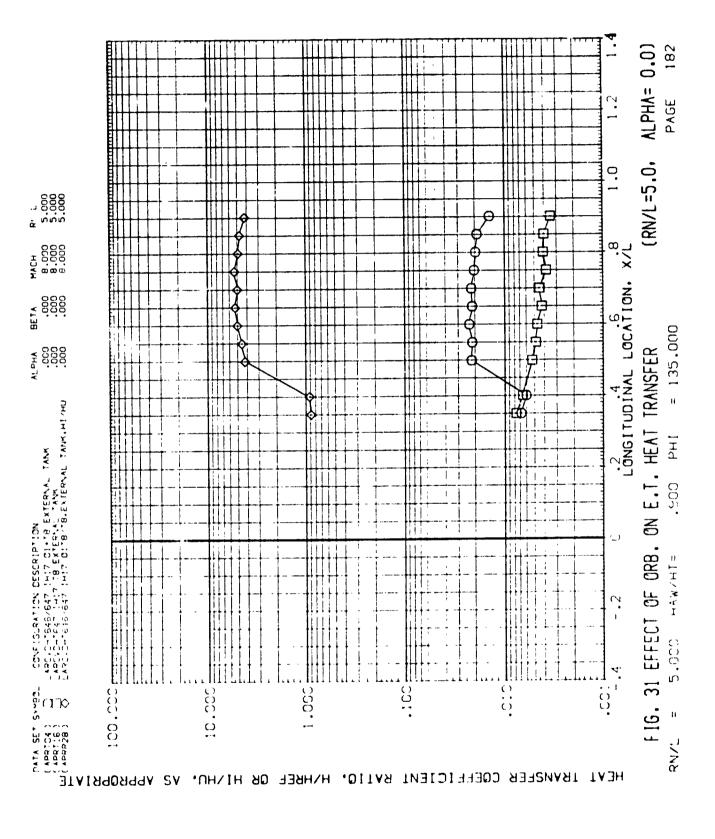






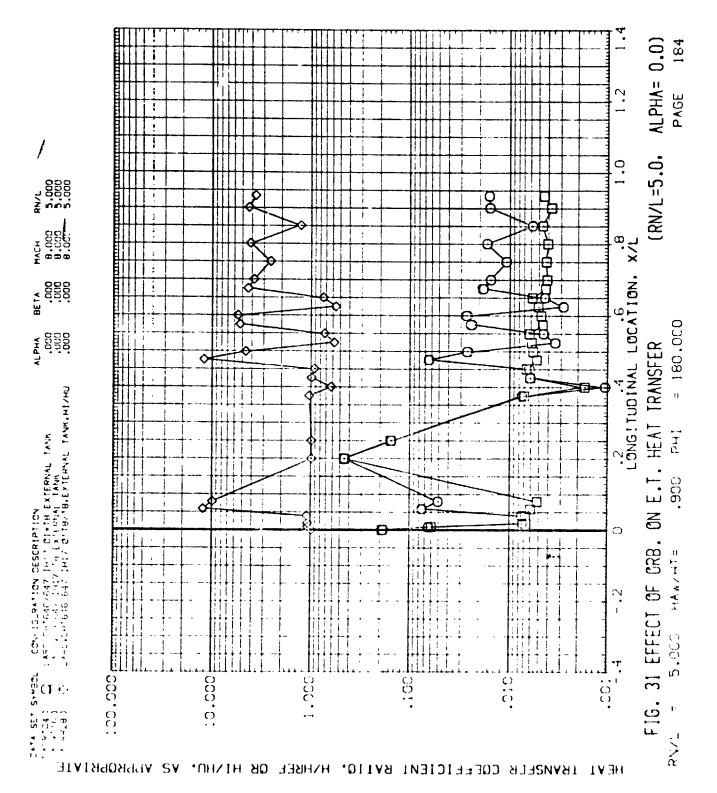


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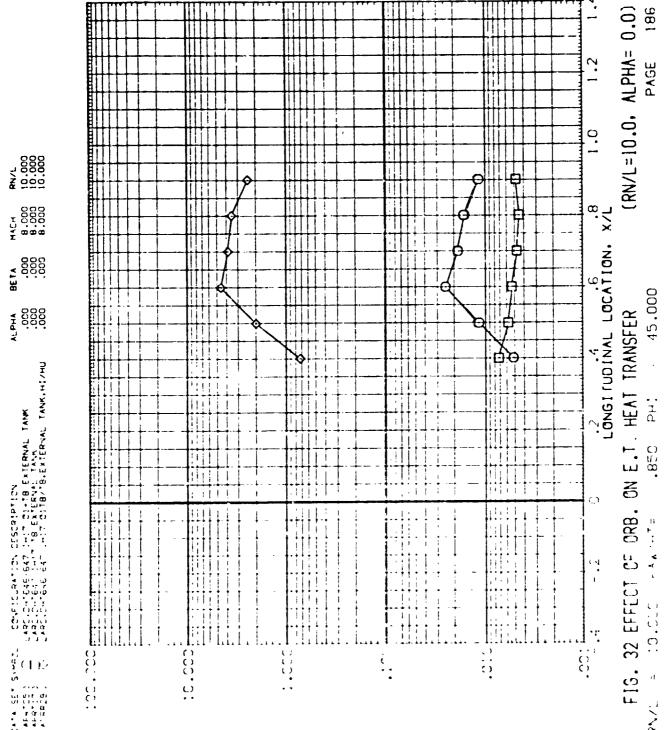
(RN/L=10.0, ALPHA= 0.0)
PAGE 185 1 11.1 11. 0.1 RN/L 10.000 10.000 1:43 11 LONGITUDINAL LOCATION. X/L

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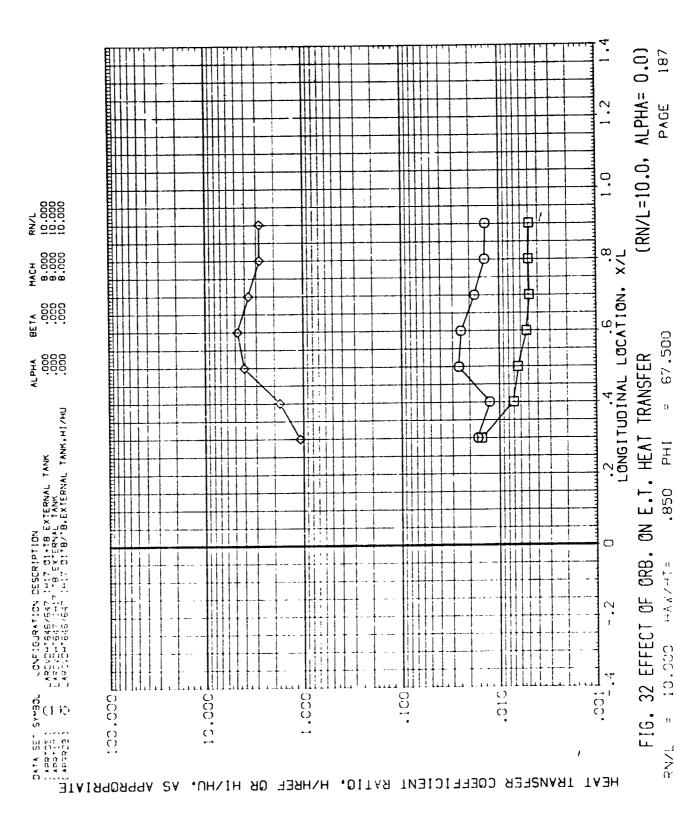
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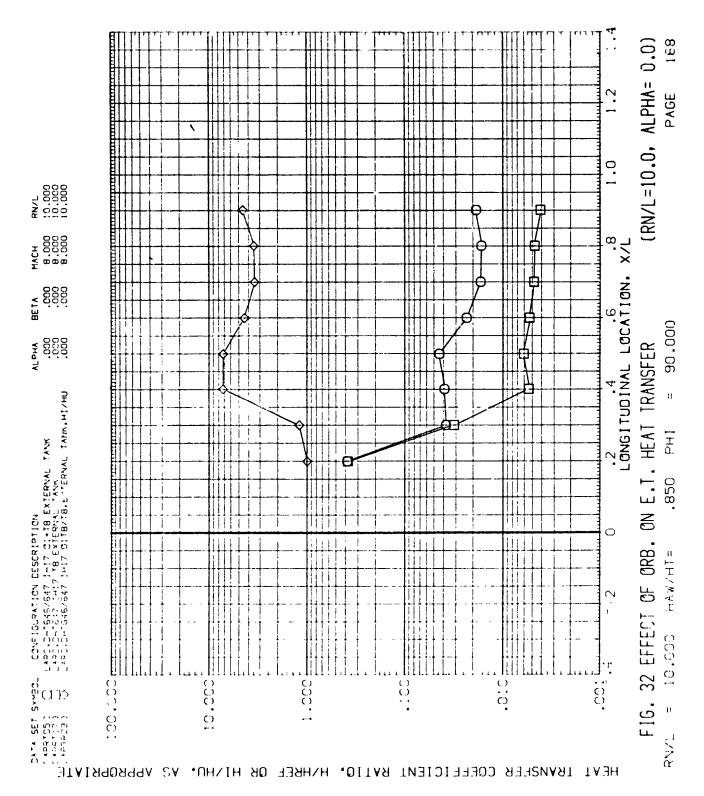
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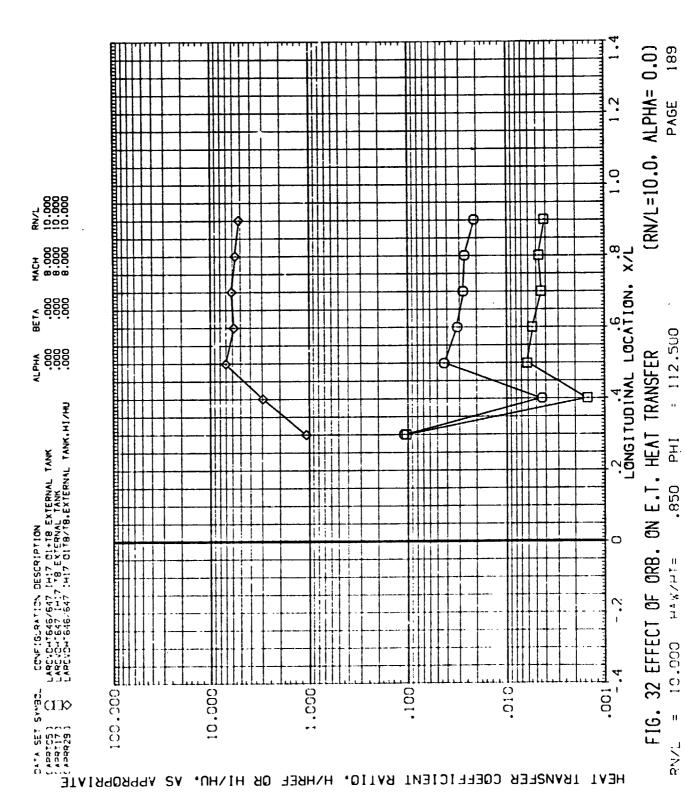
HEAT TRANSFER COEFFICIENT RATIO, HAHREF OR HIMHU. AS APPROPRIATE

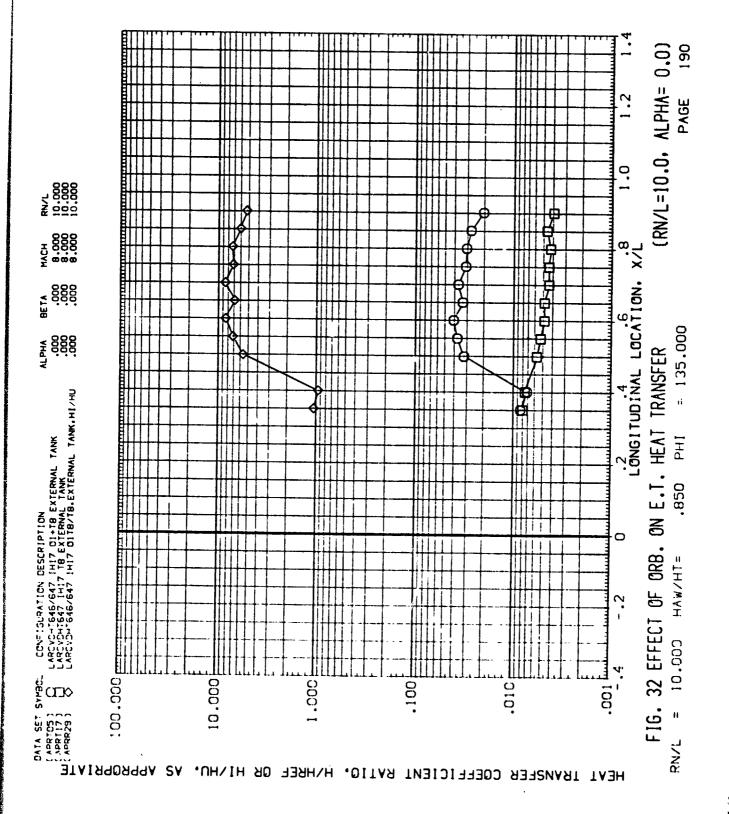


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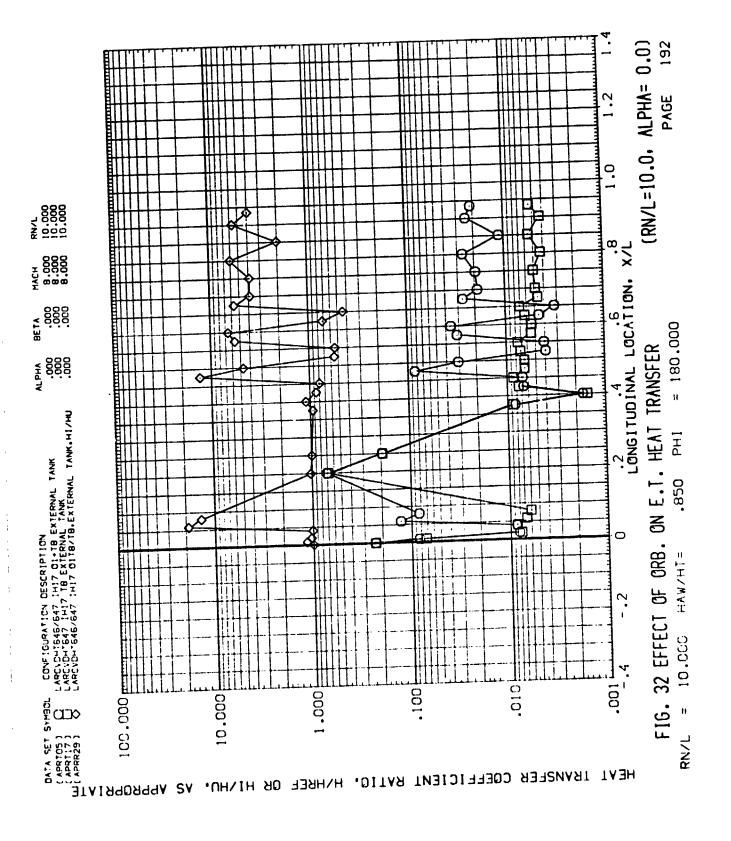
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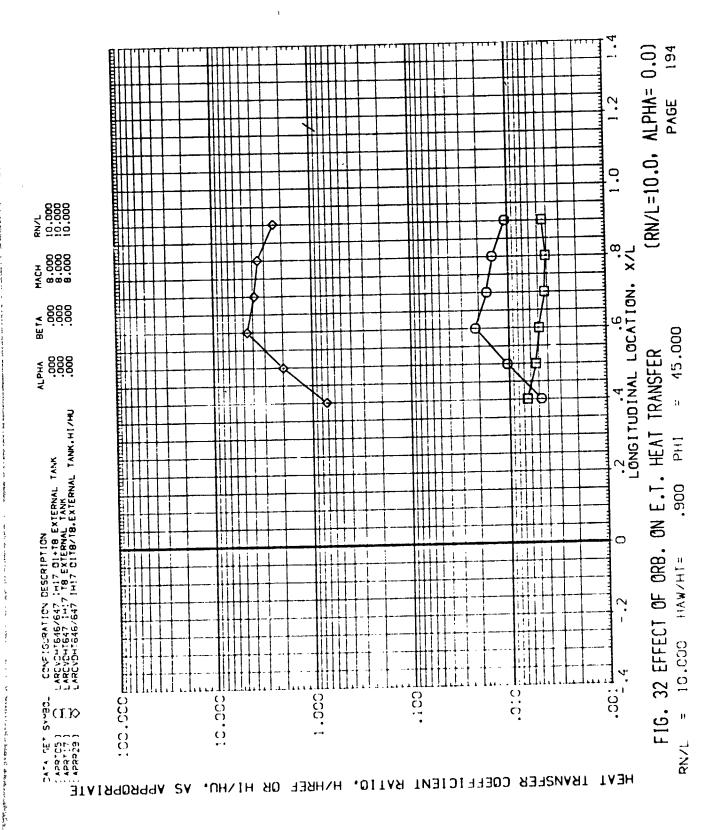
FIG. 32 EFFECT OF ORB. ON E.I. HEAT TRANSFER

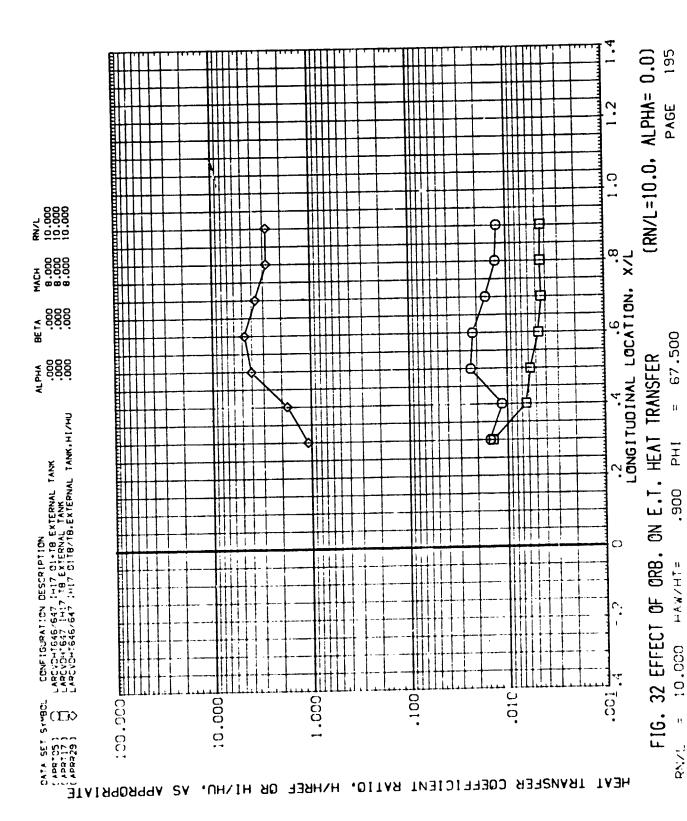
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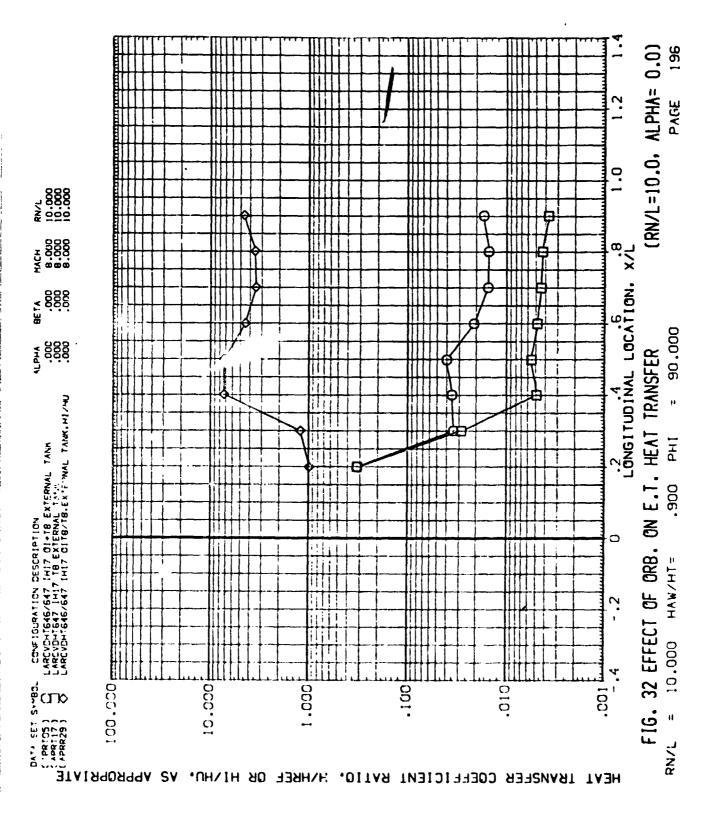
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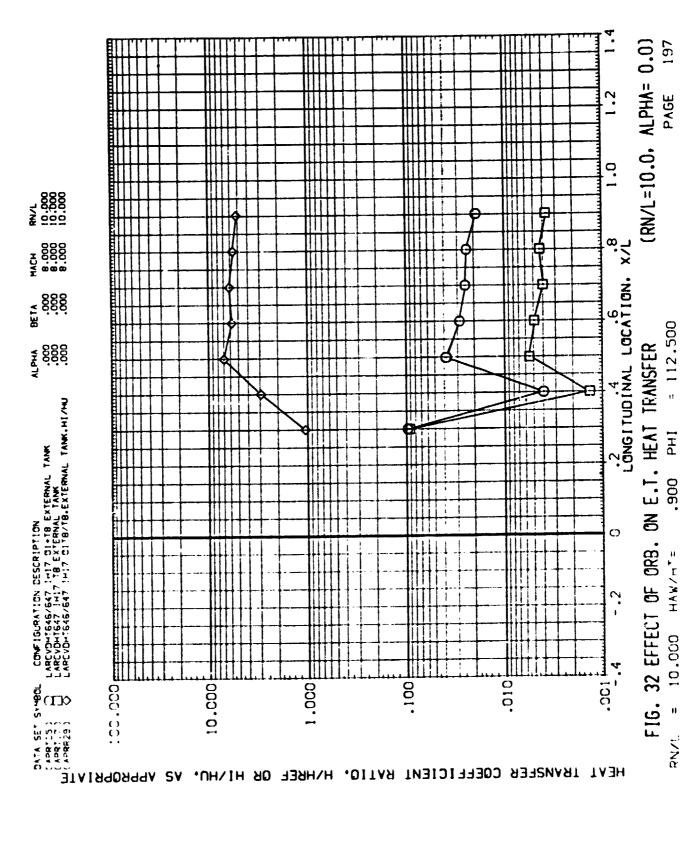
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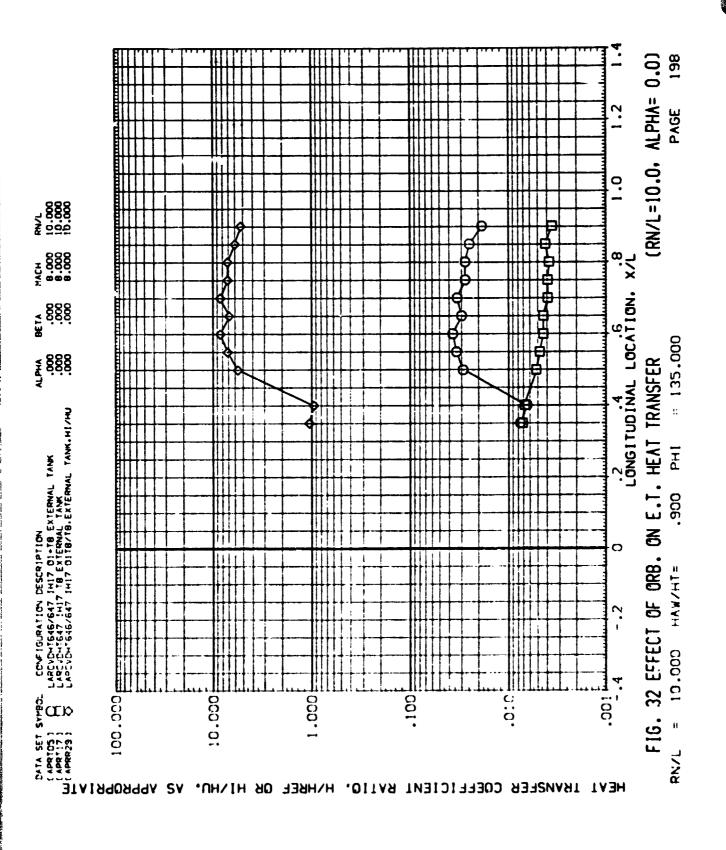


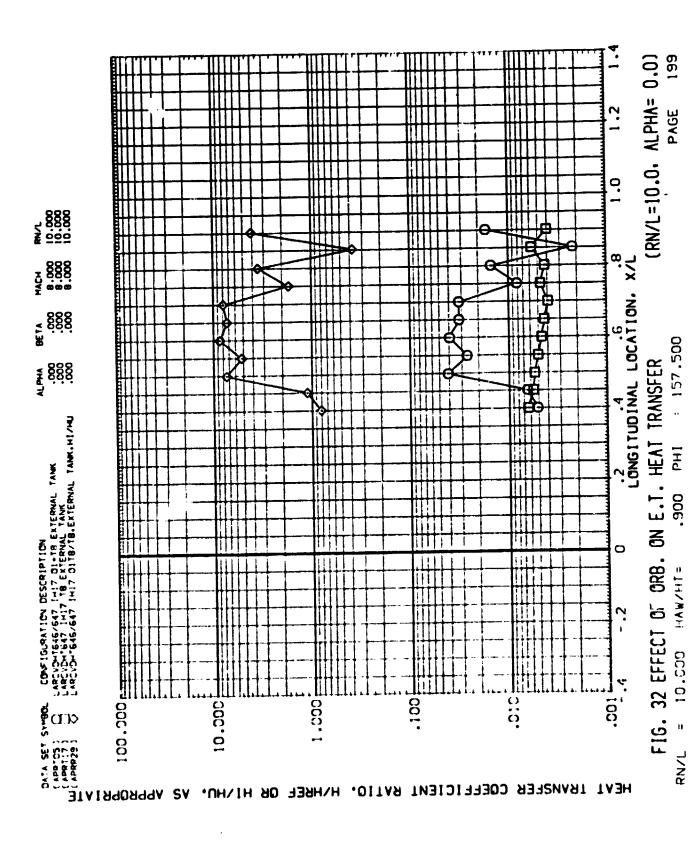


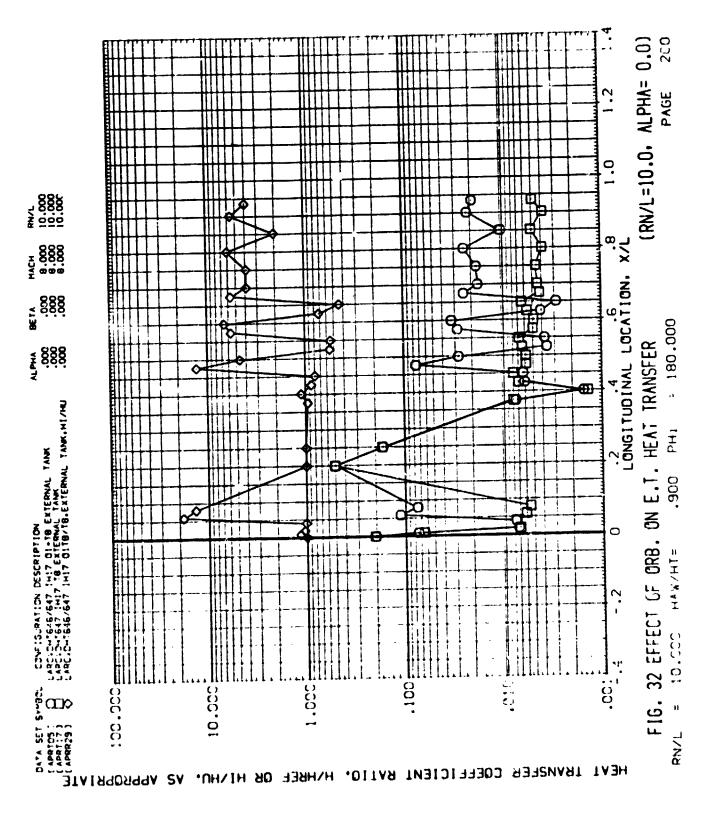


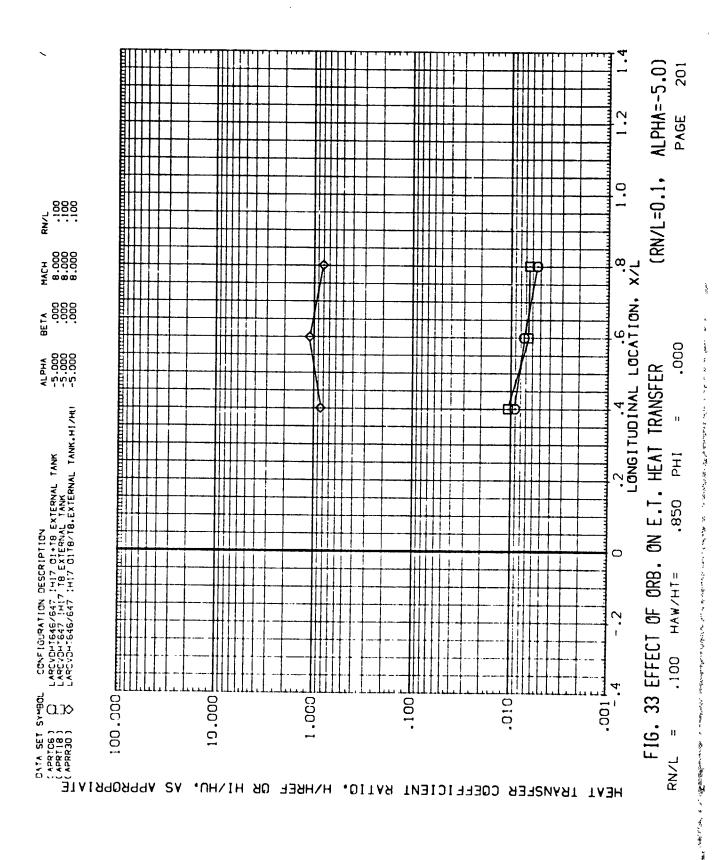


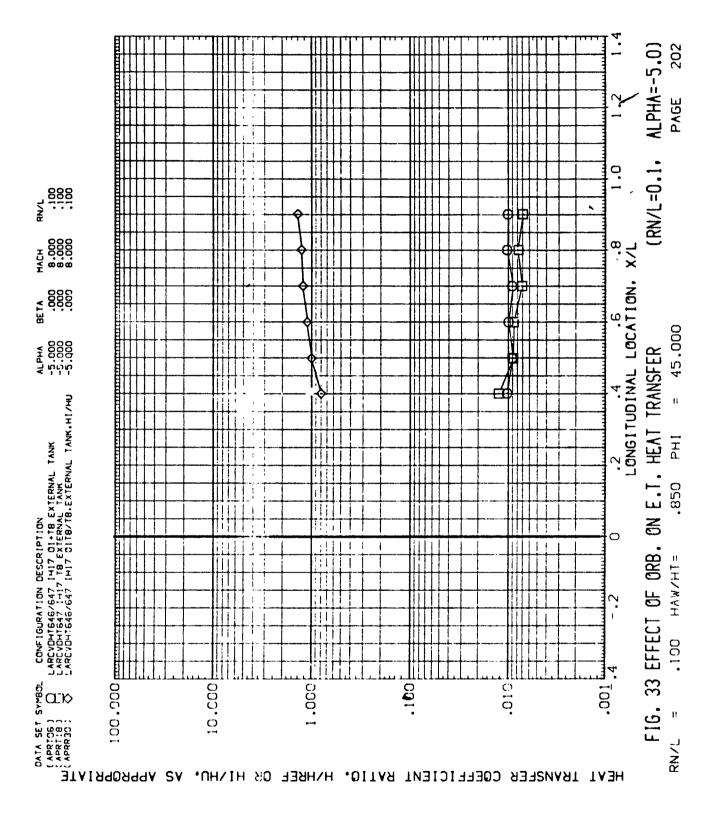


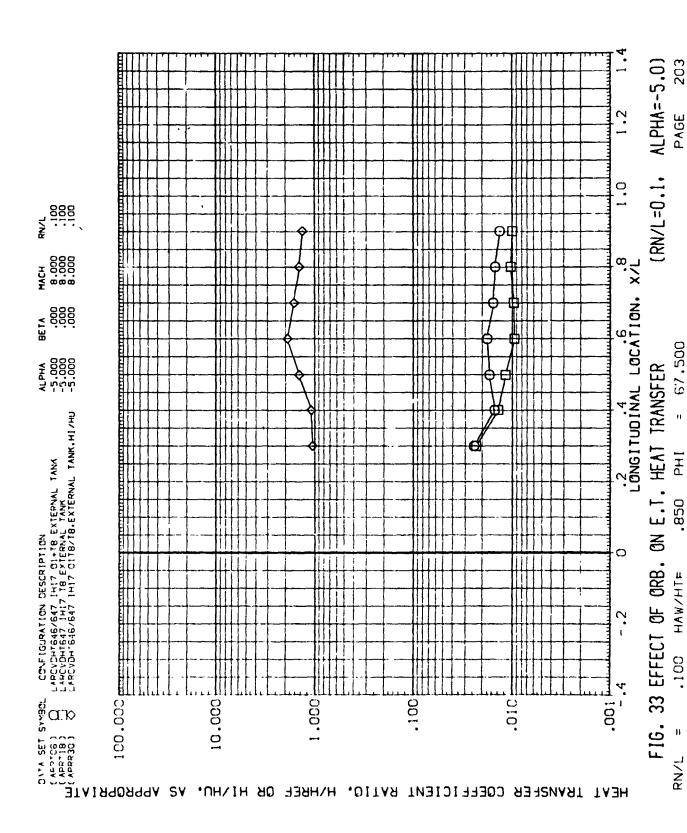


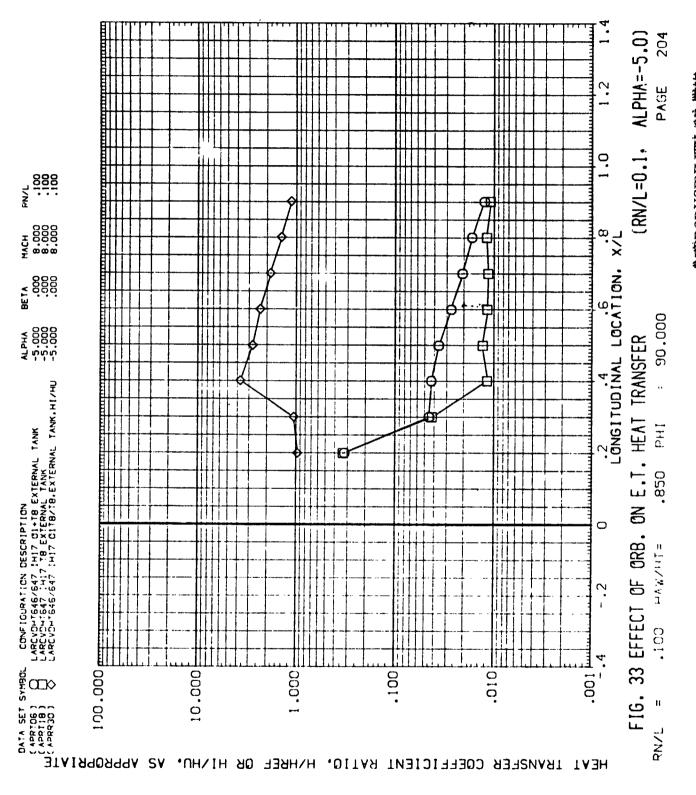




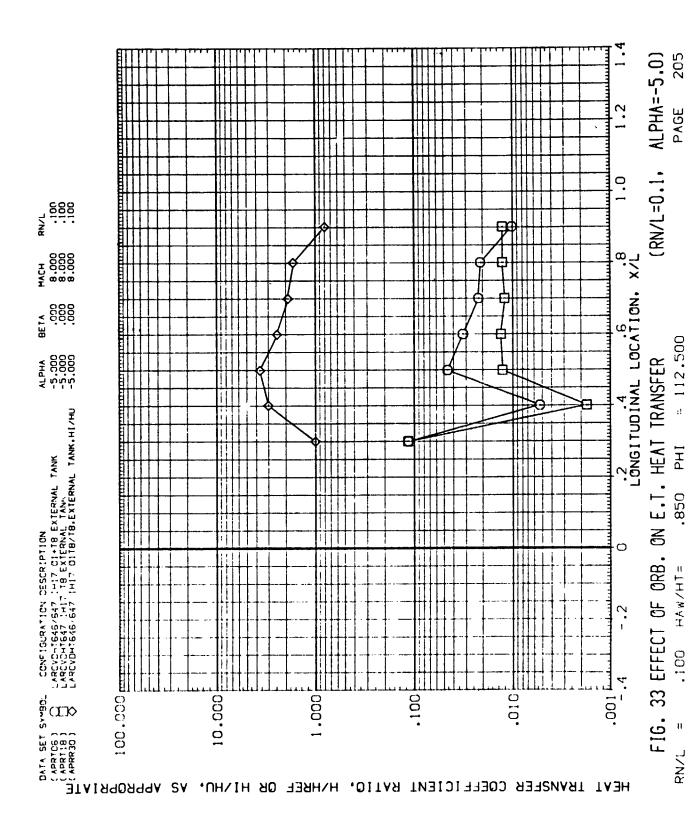




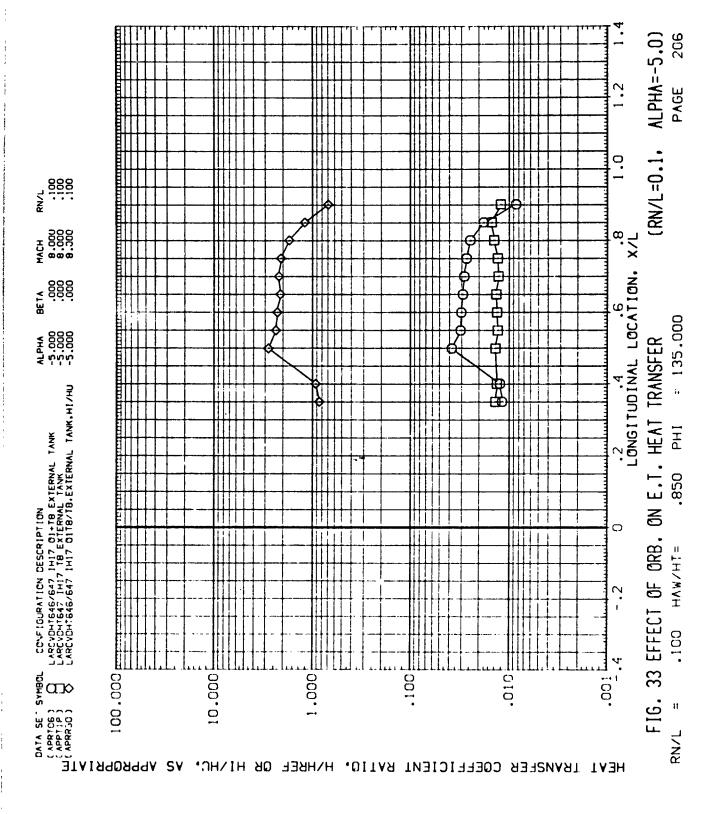


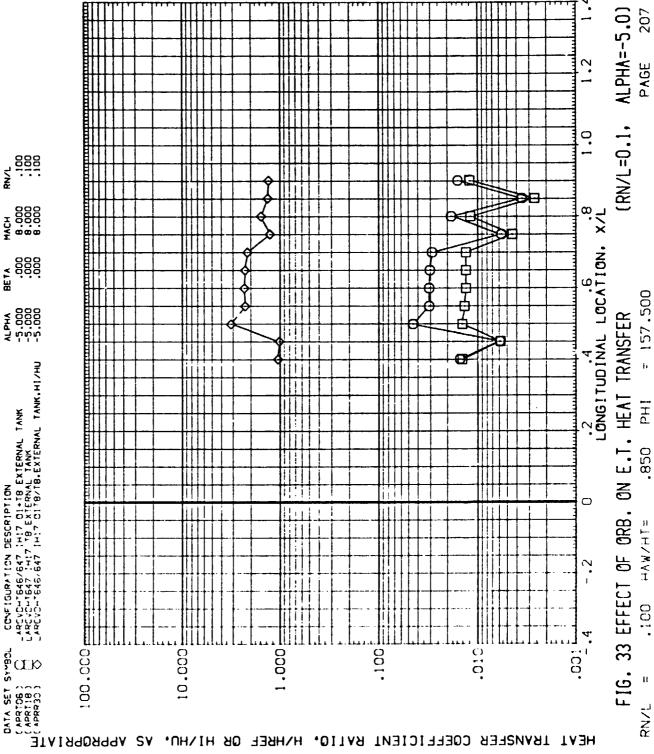


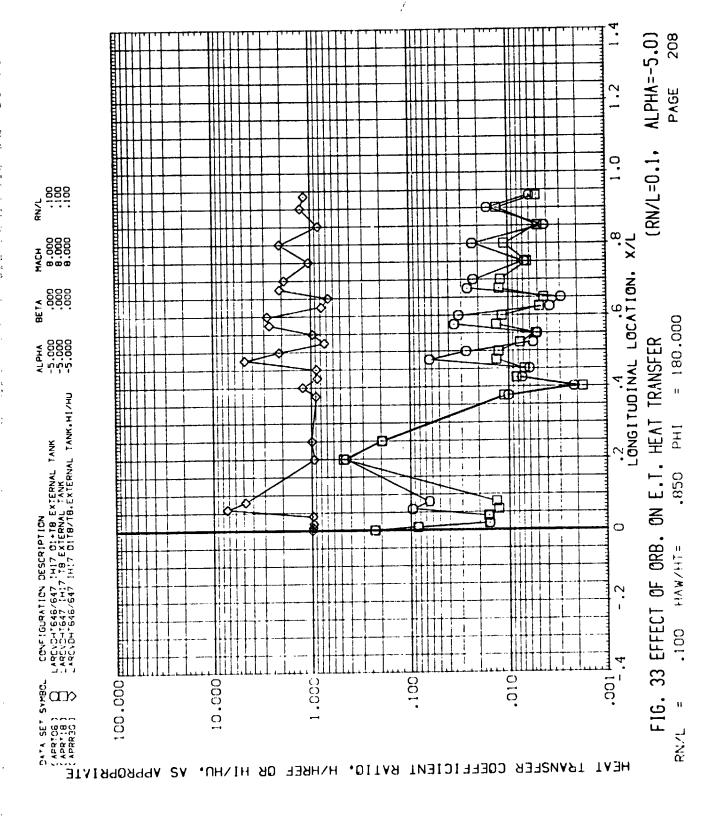
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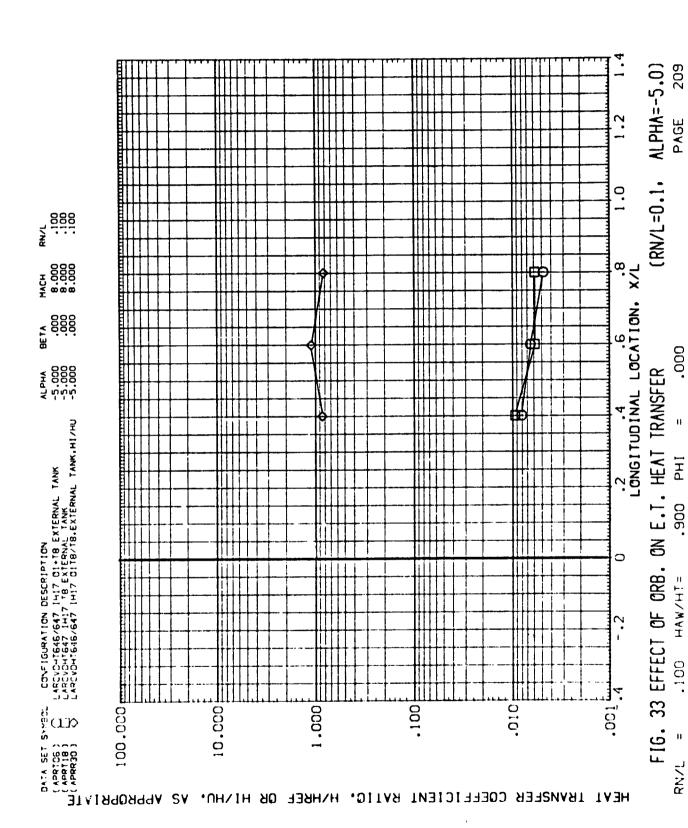


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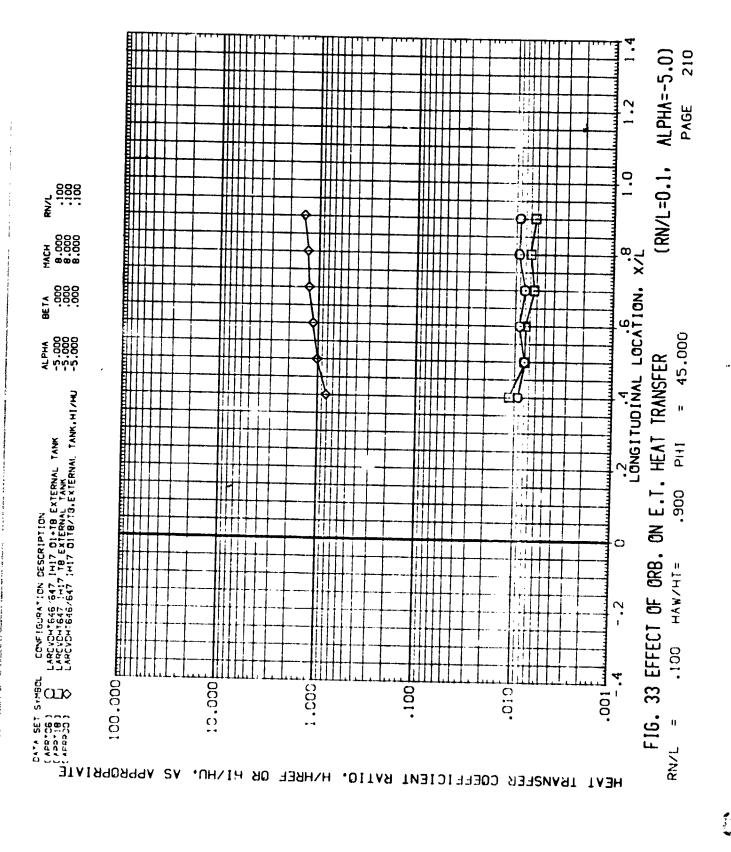


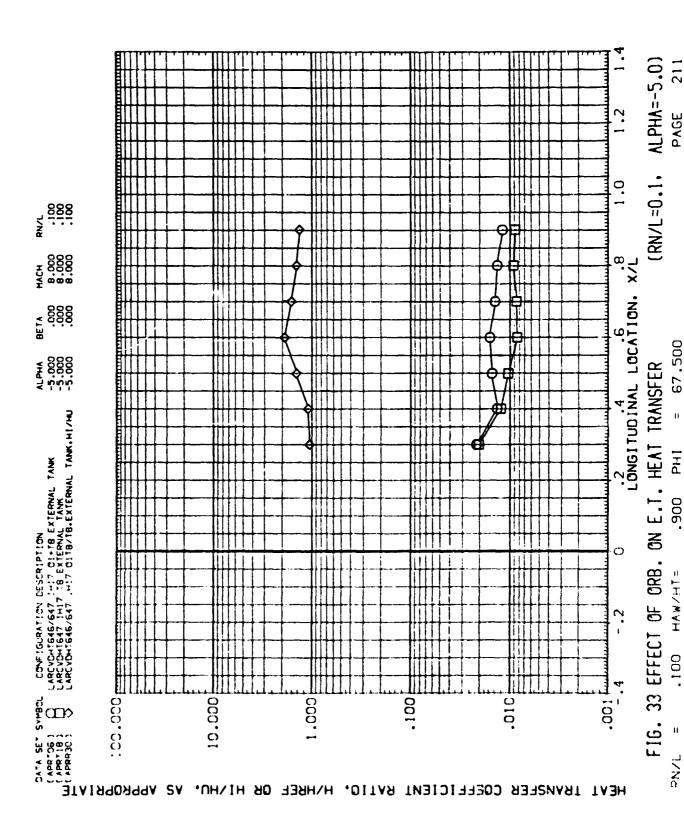




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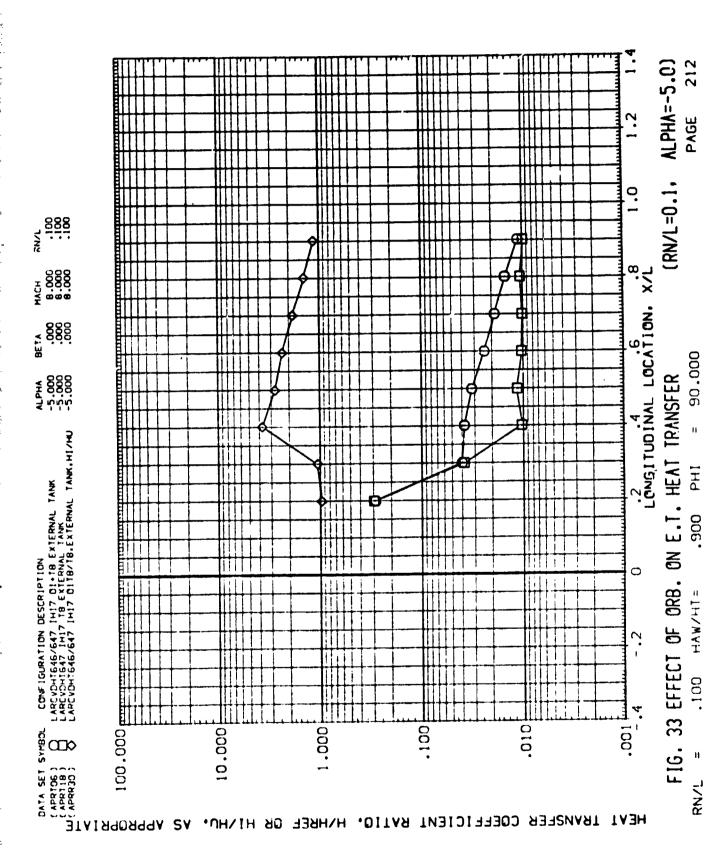




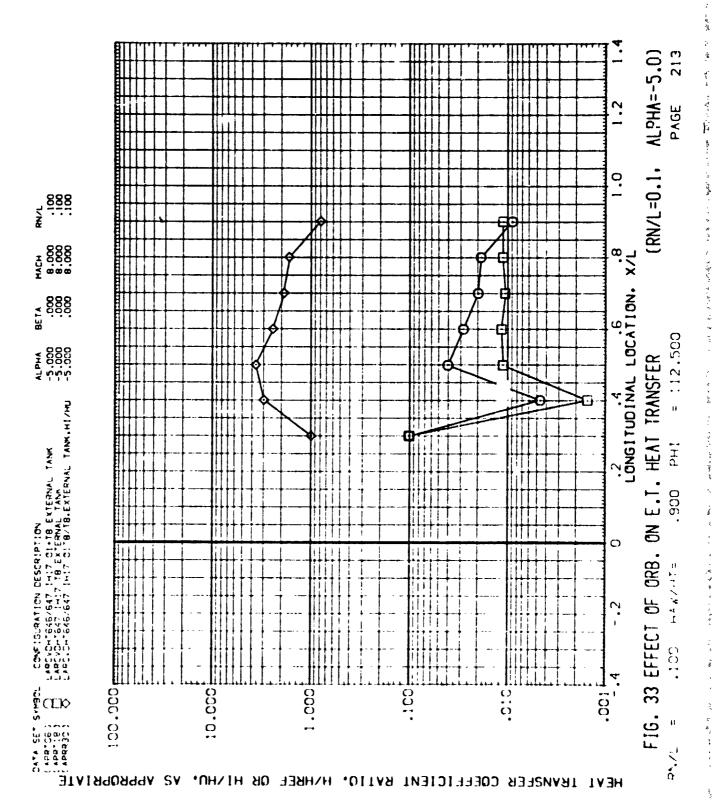
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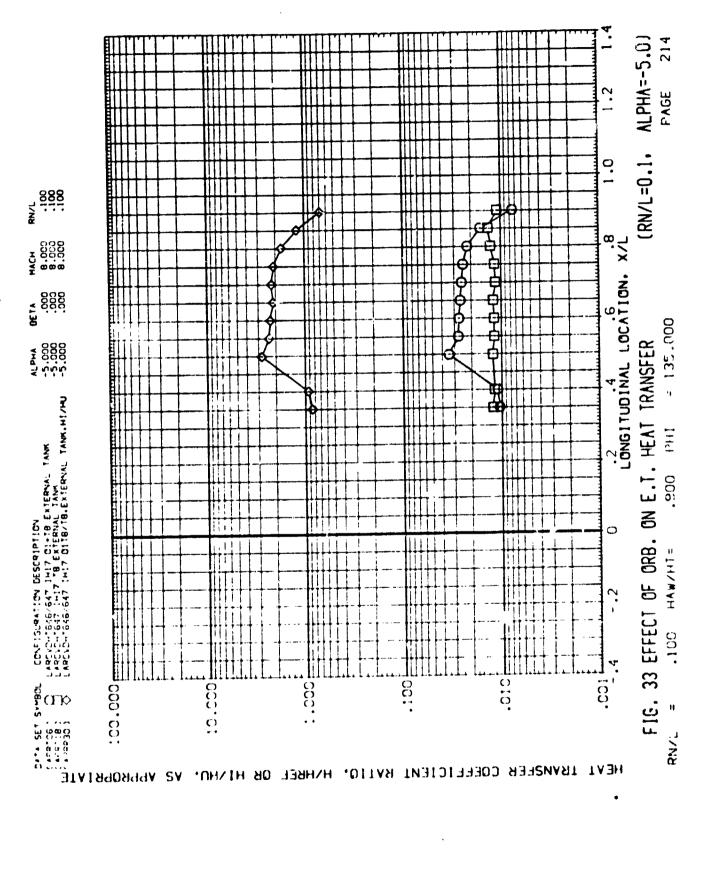


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PAGE (RN/L=0.1, = 157,500 FIG. 33 EFFECT OF ORB. ON E.T. HEAT TRANSFER PN/L

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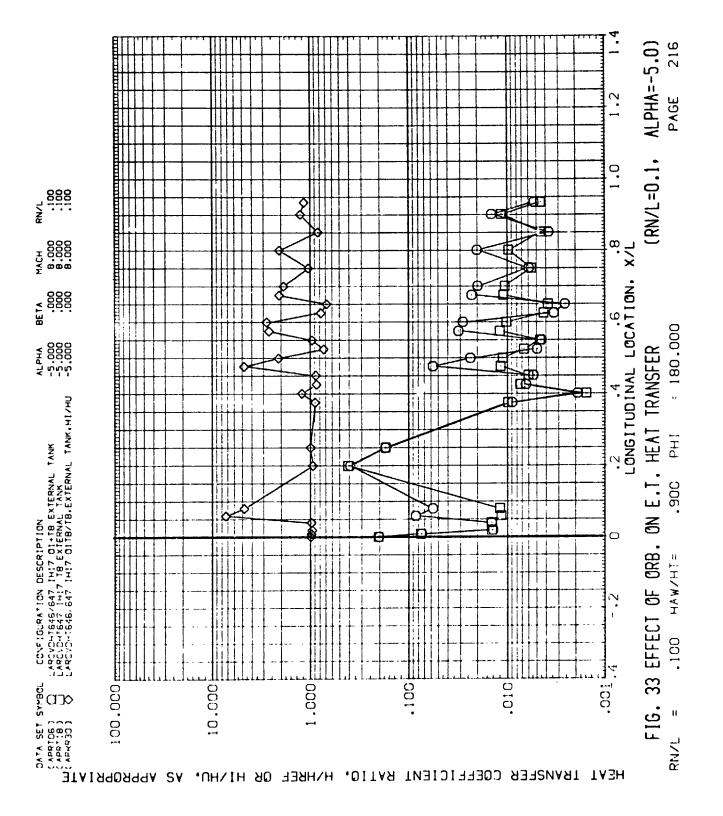
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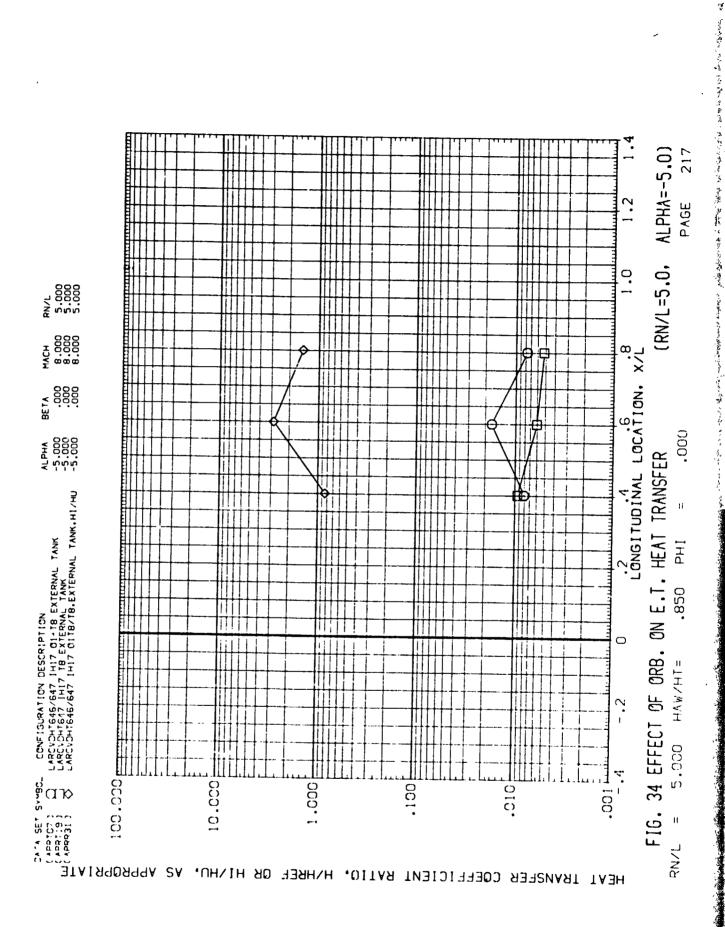
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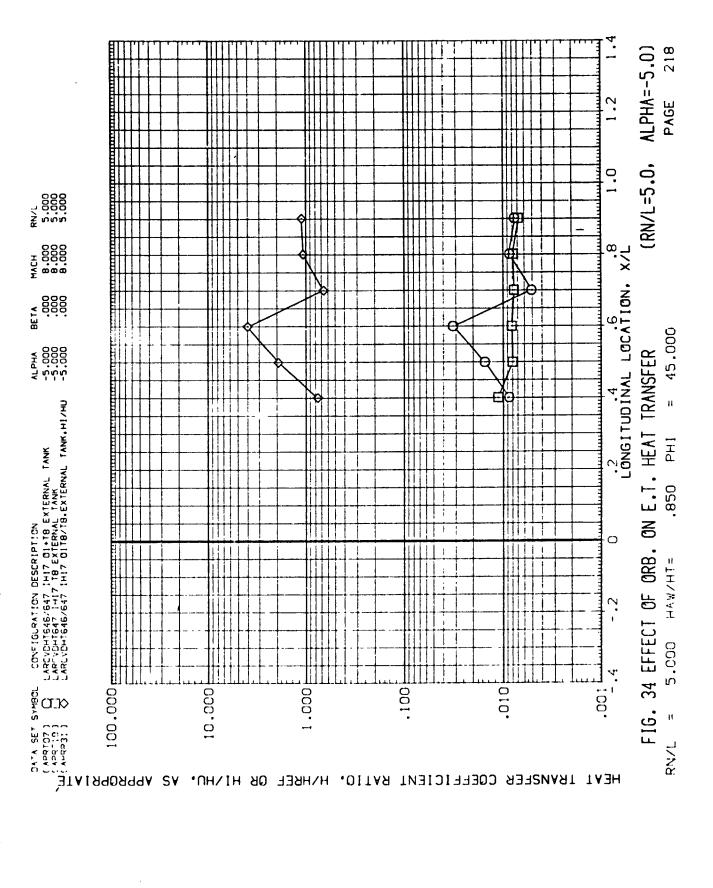
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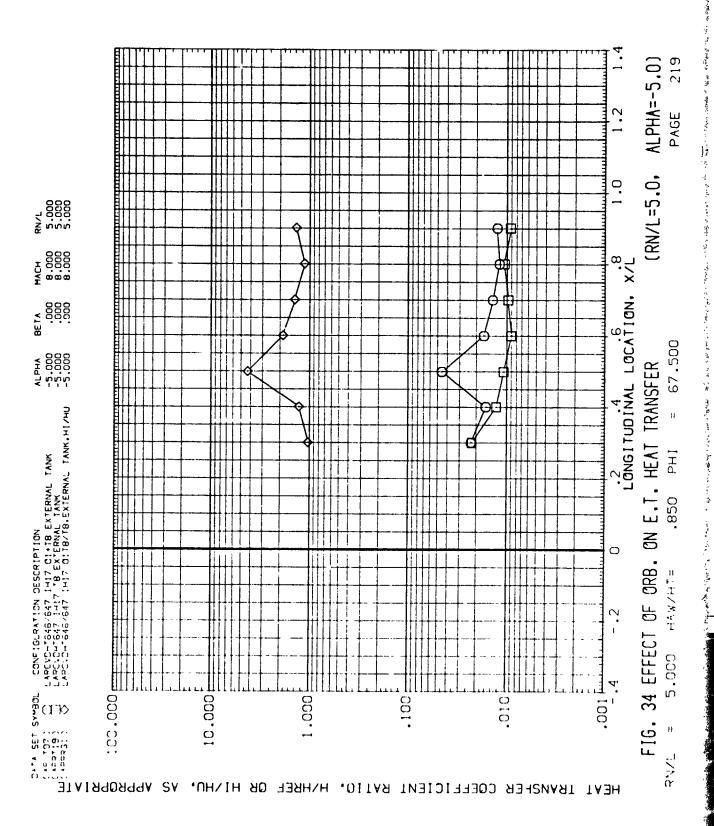
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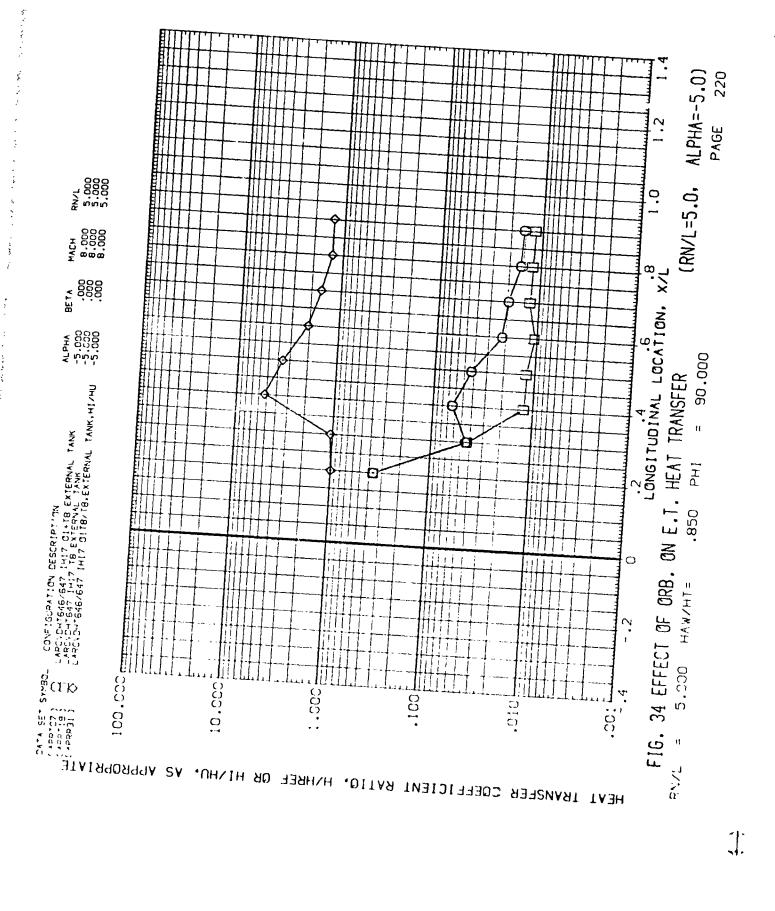


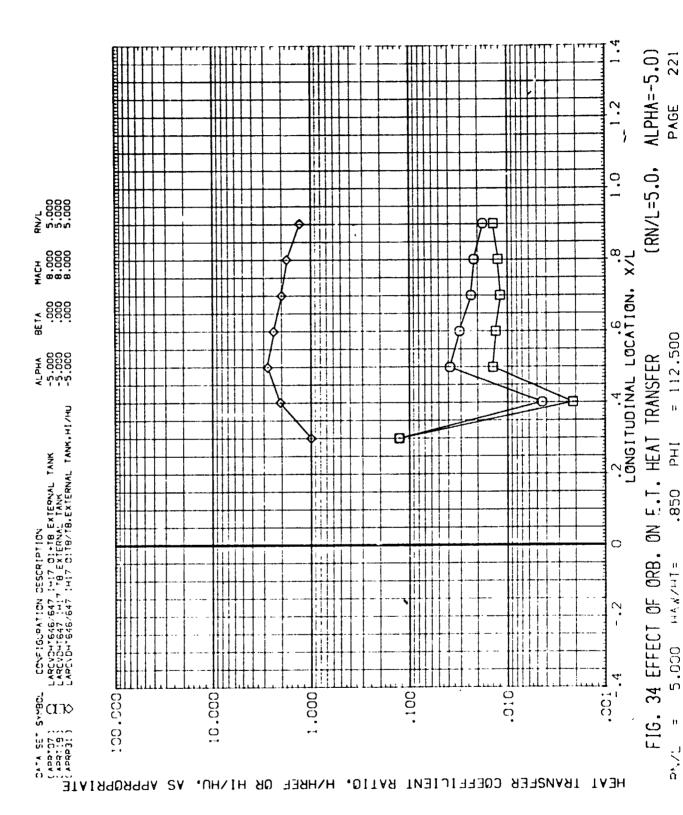


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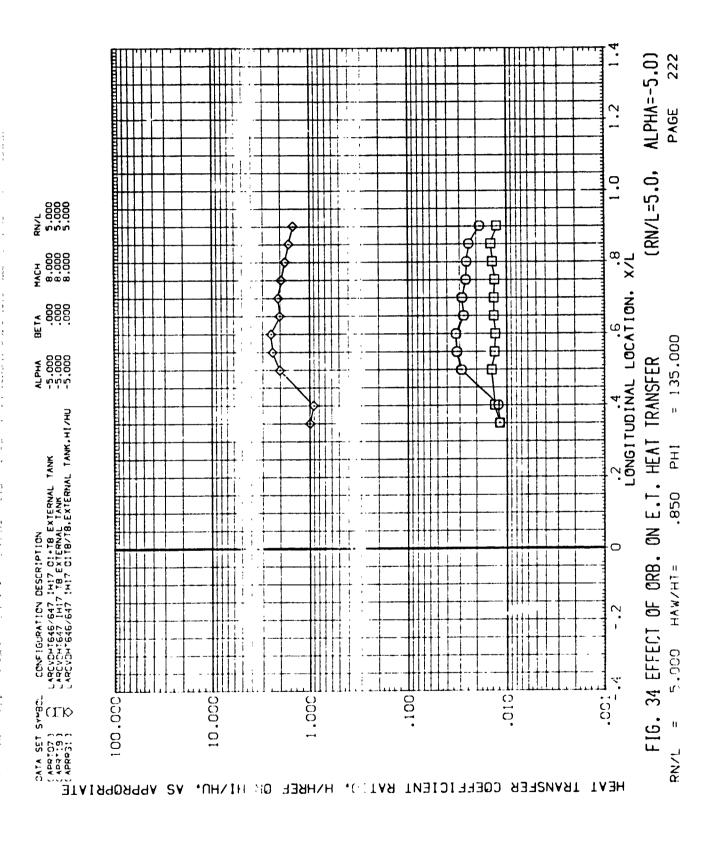




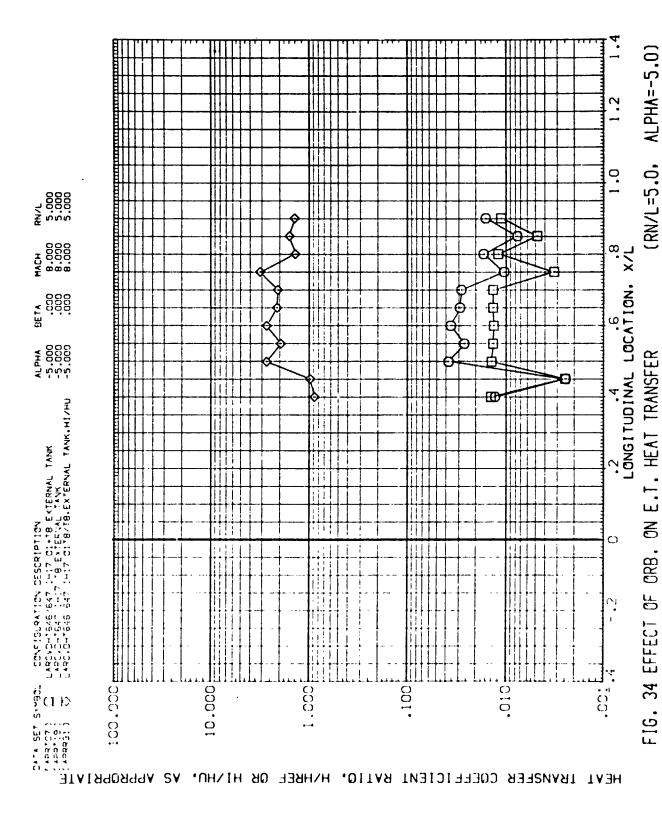
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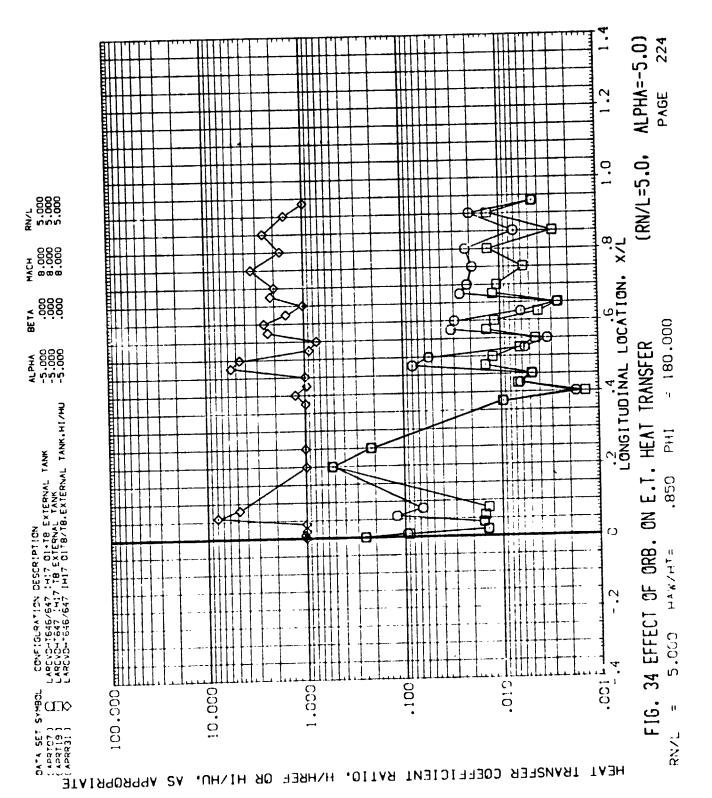
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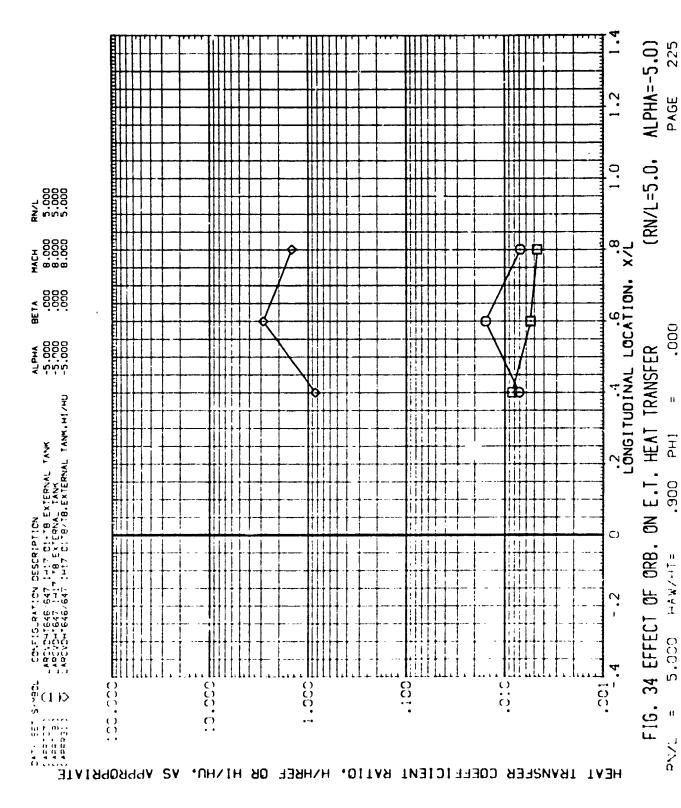
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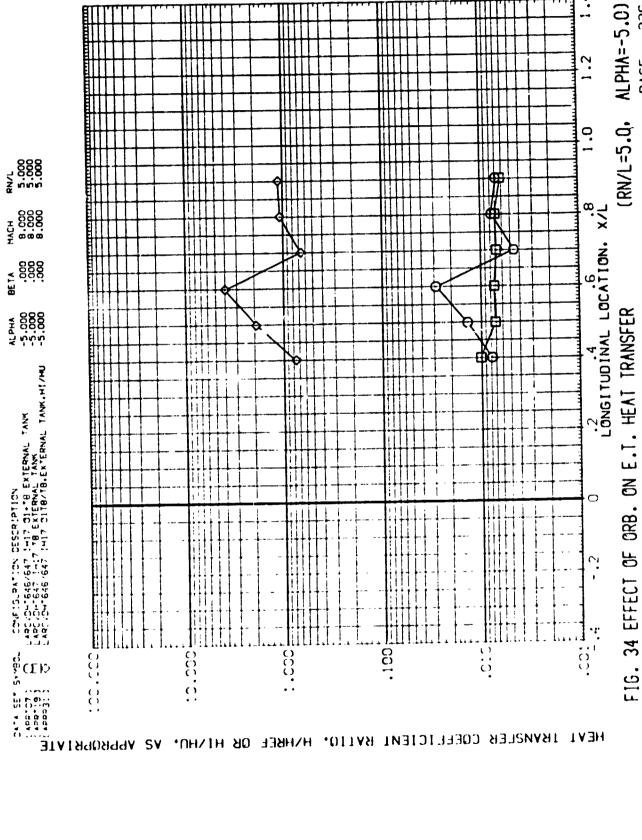
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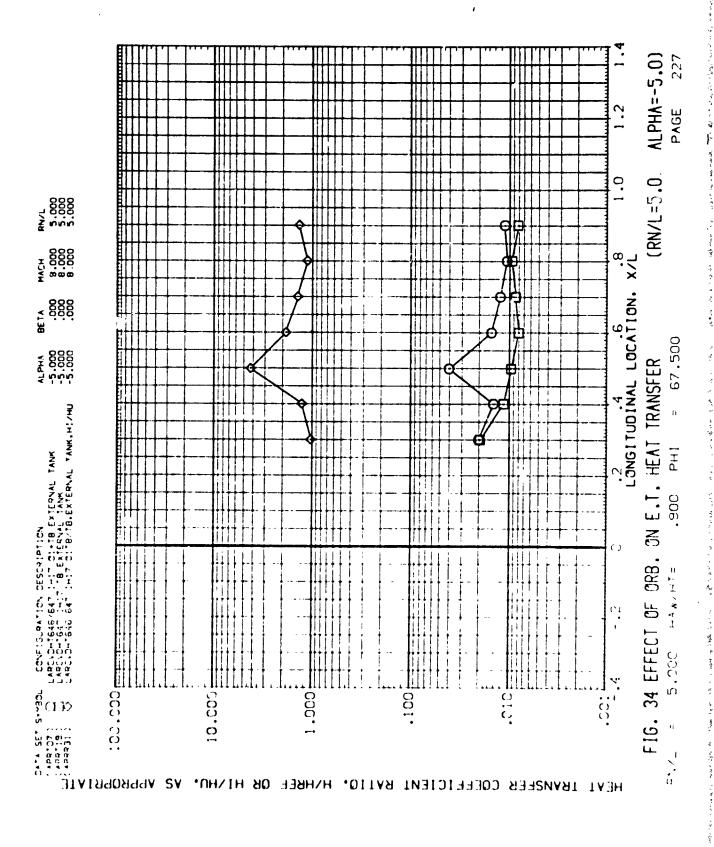
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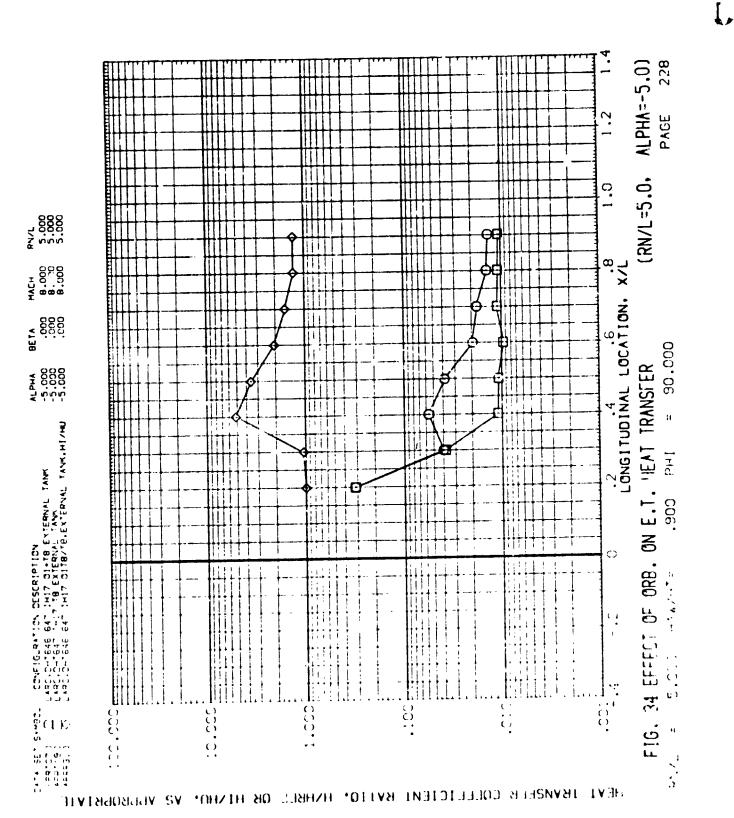
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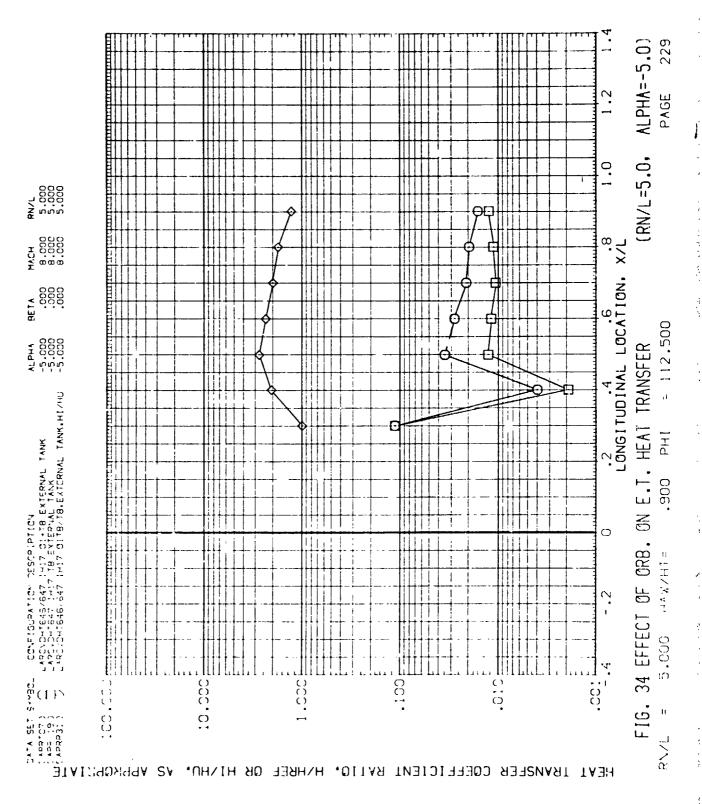


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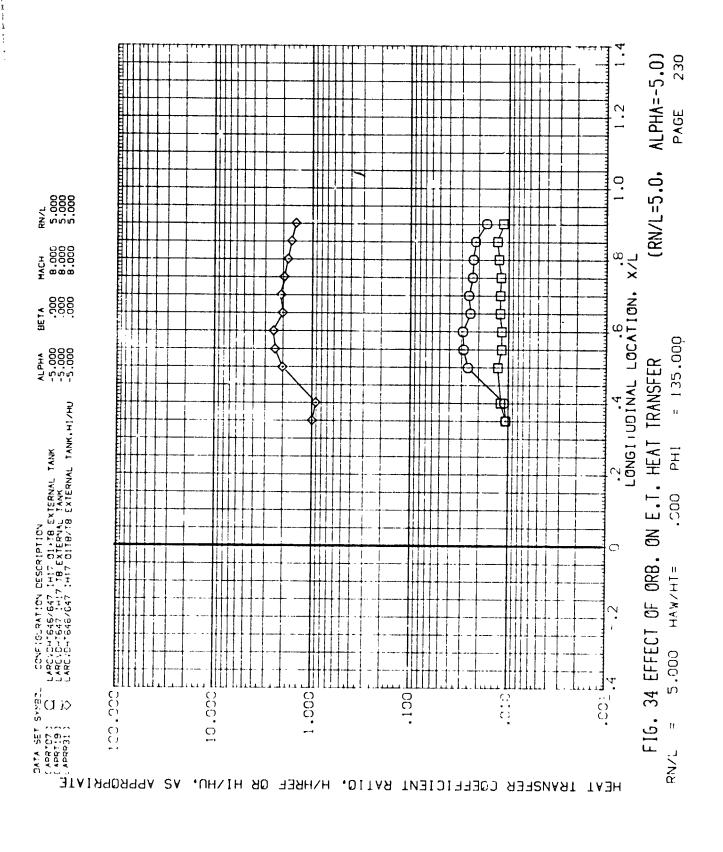


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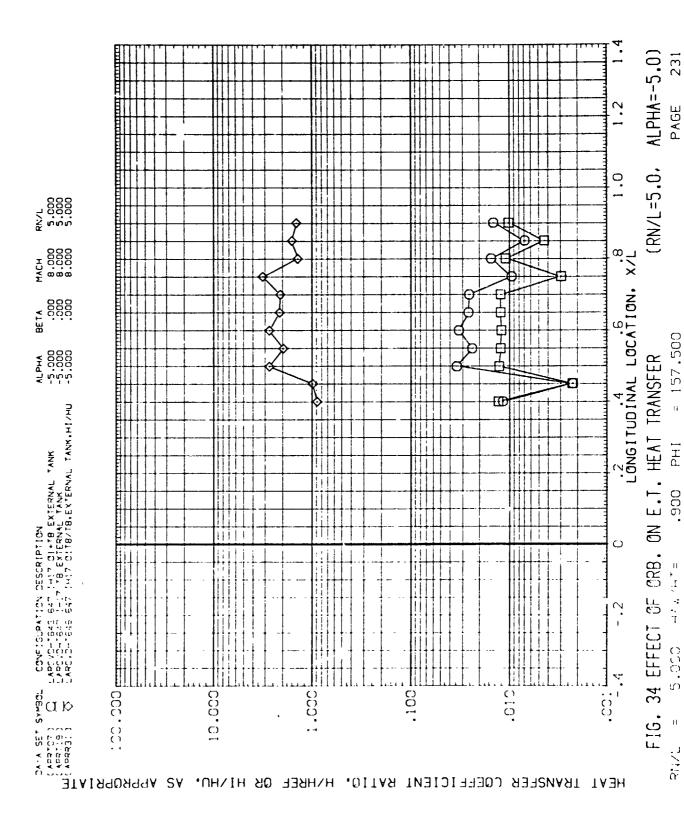
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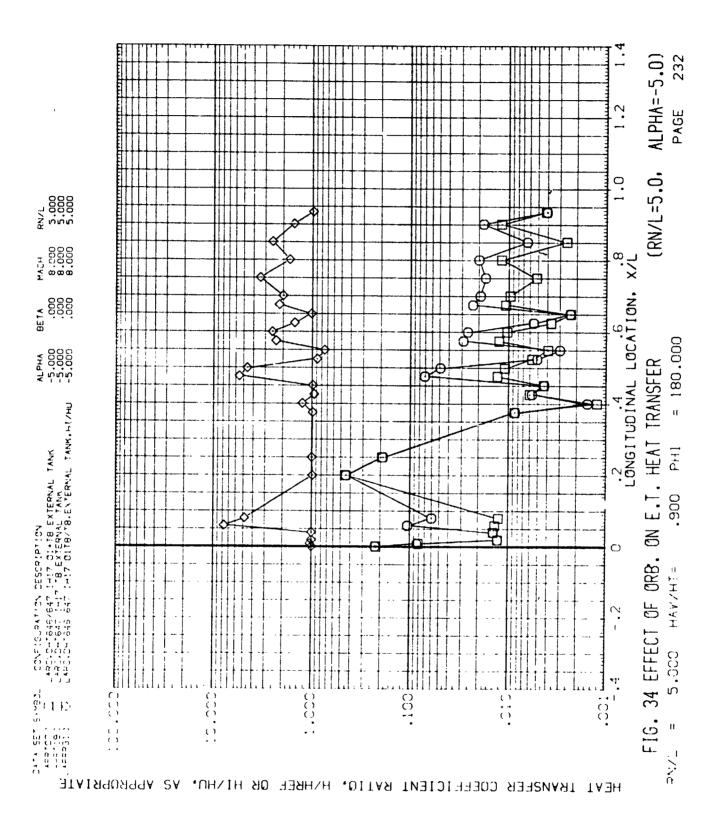
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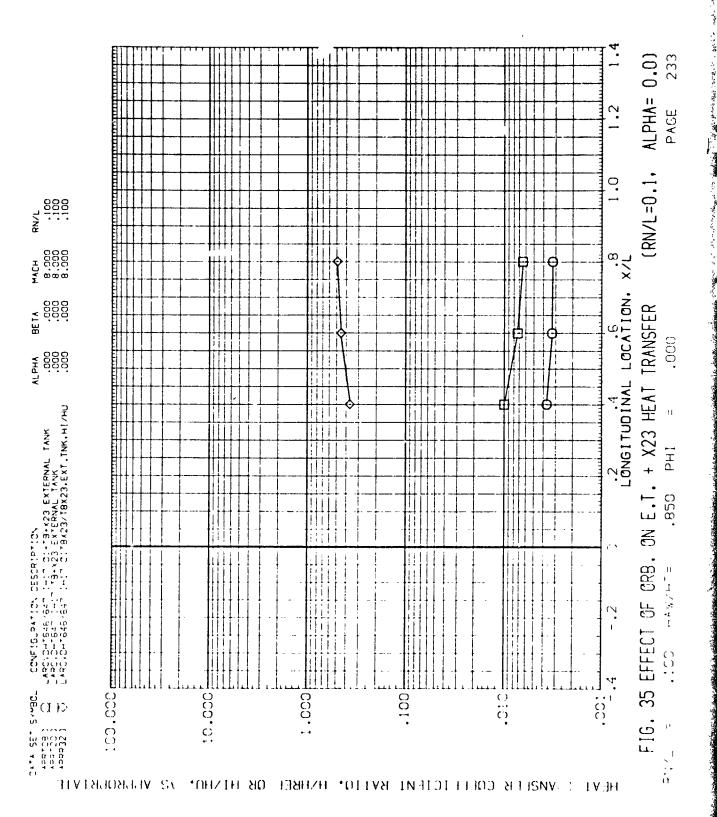
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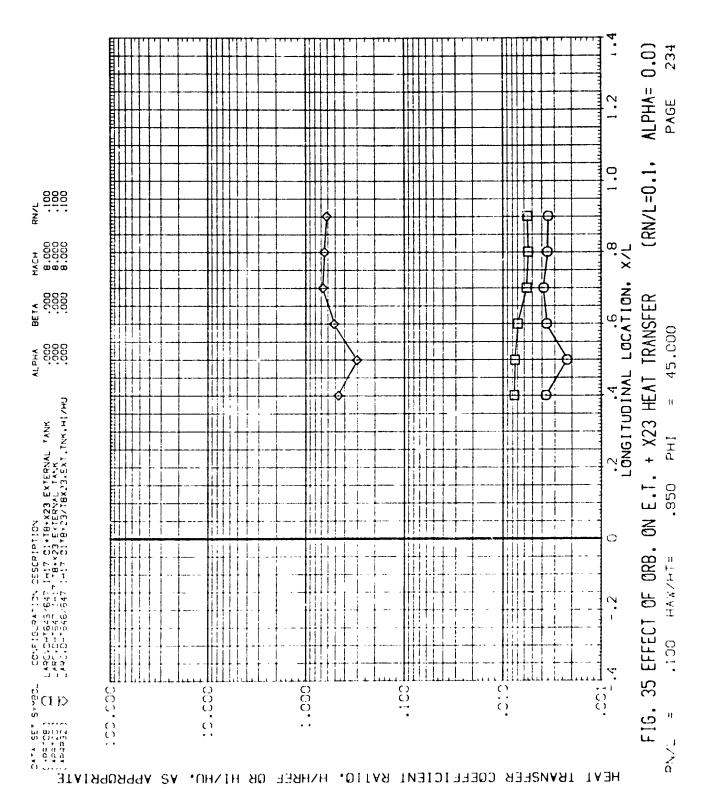
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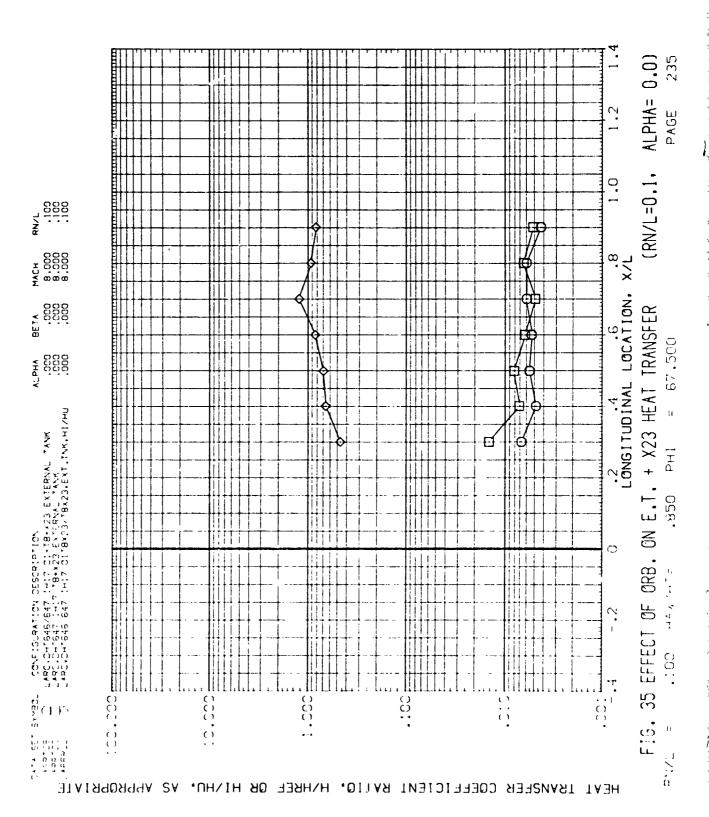
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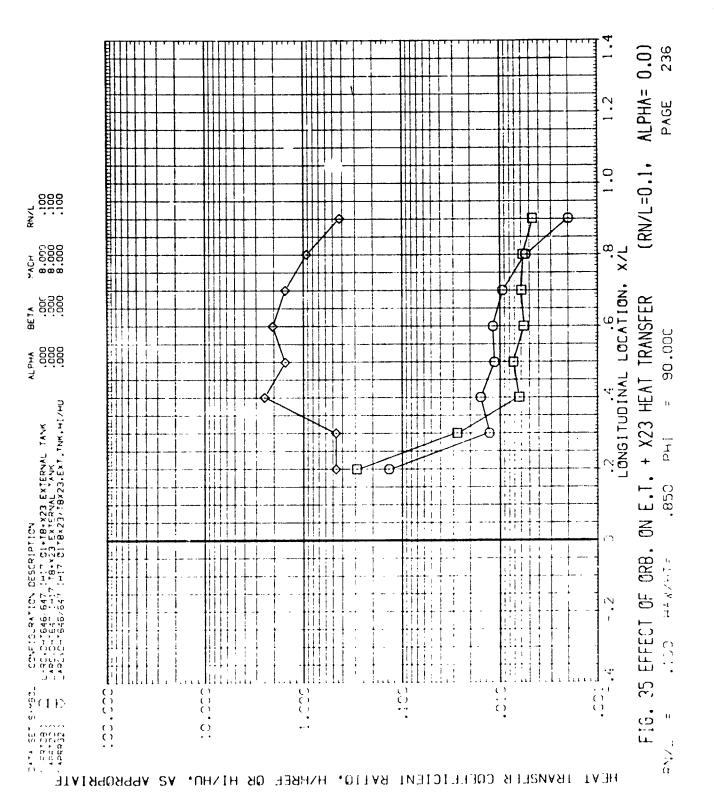


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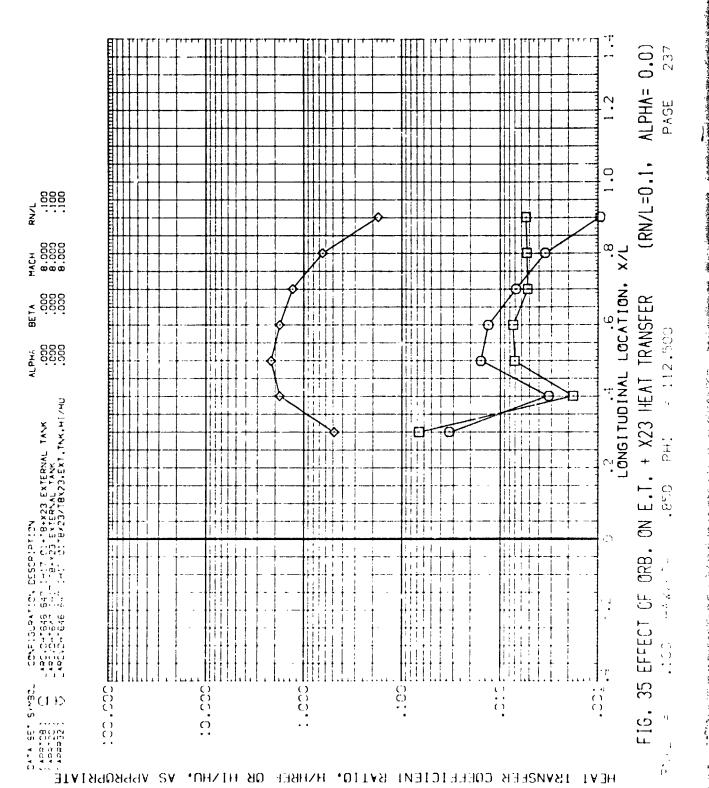




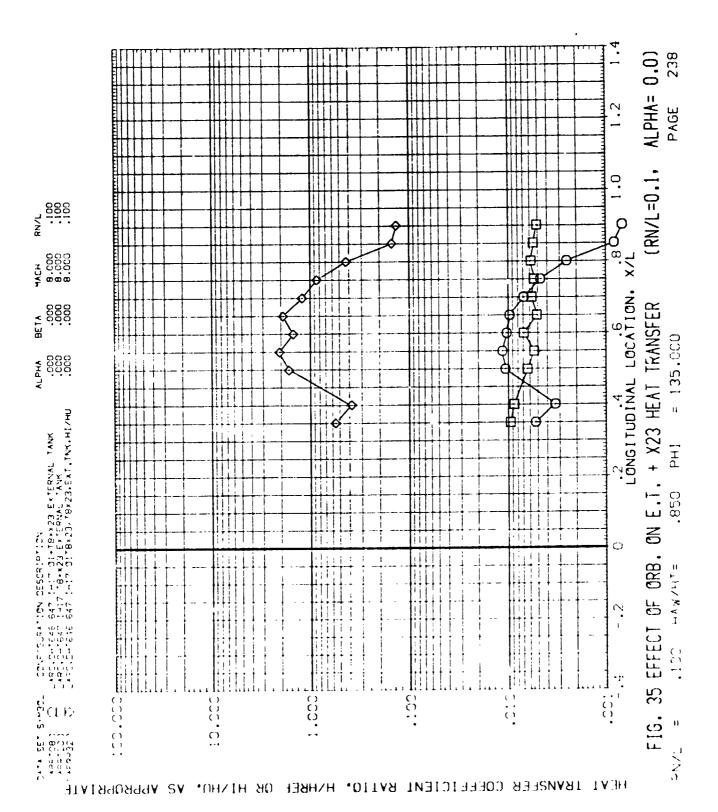
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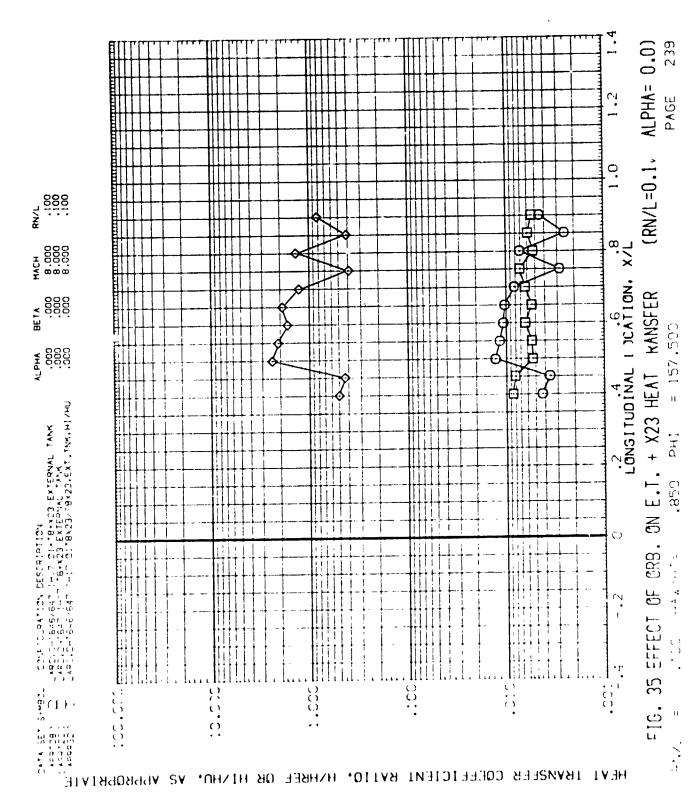


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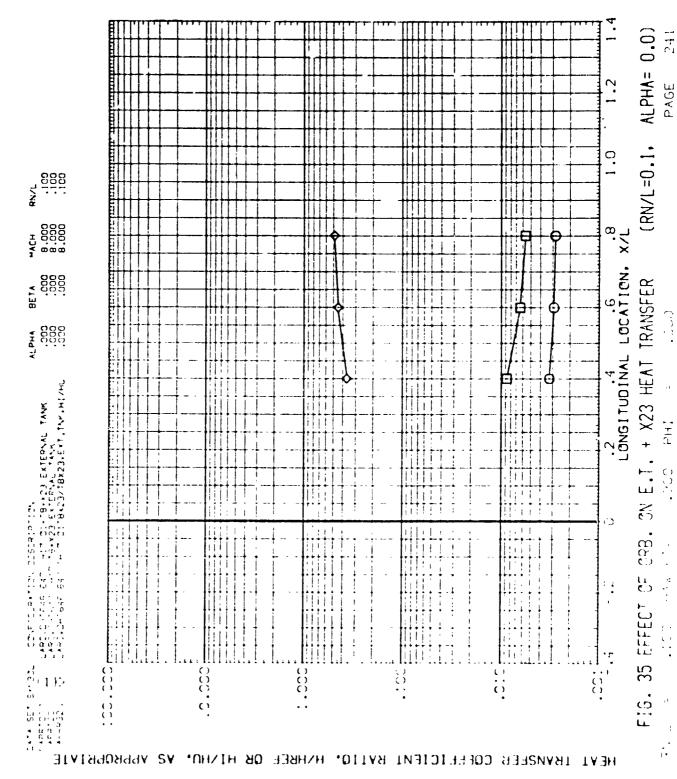
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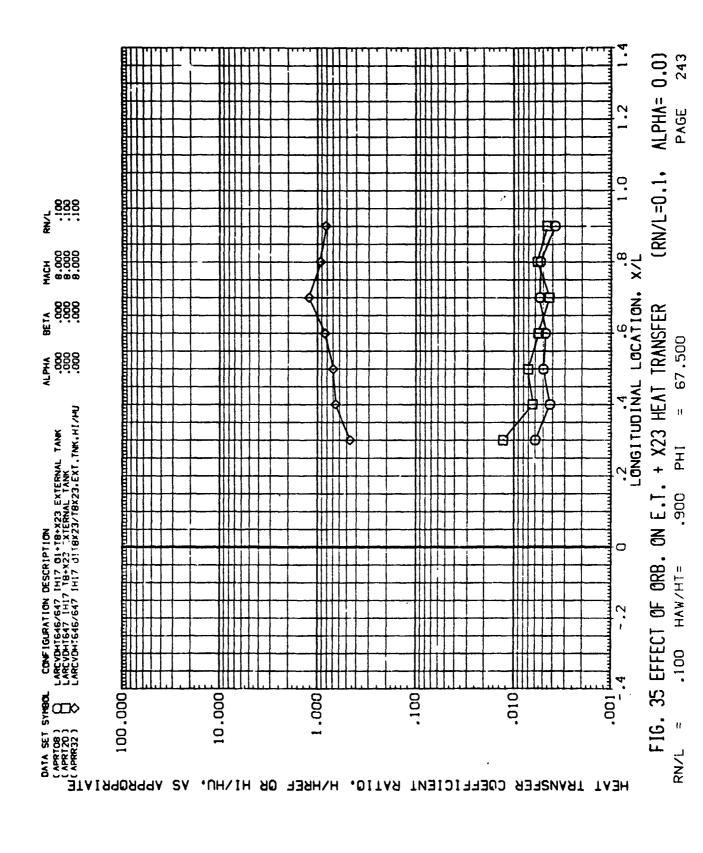


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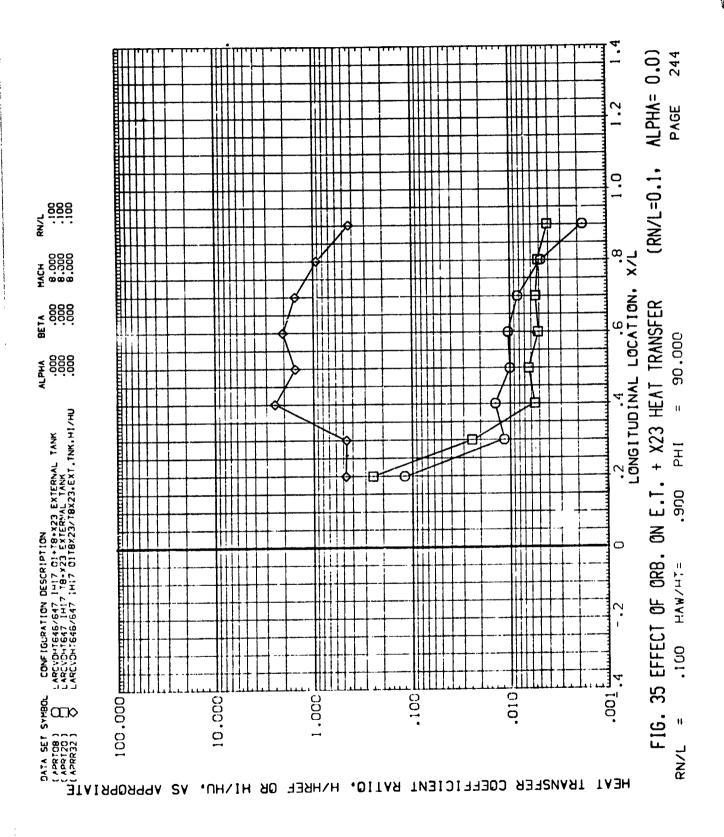
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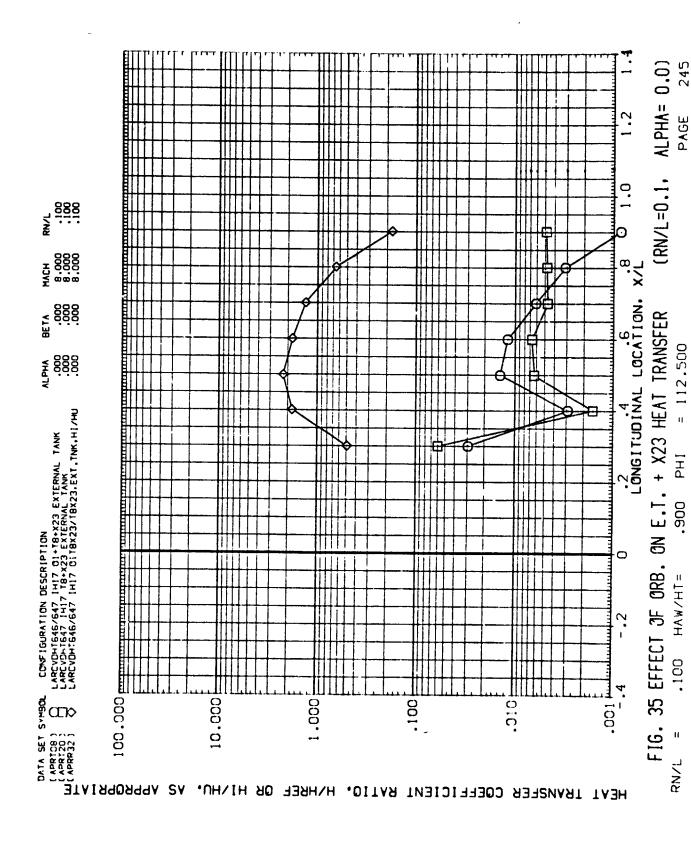


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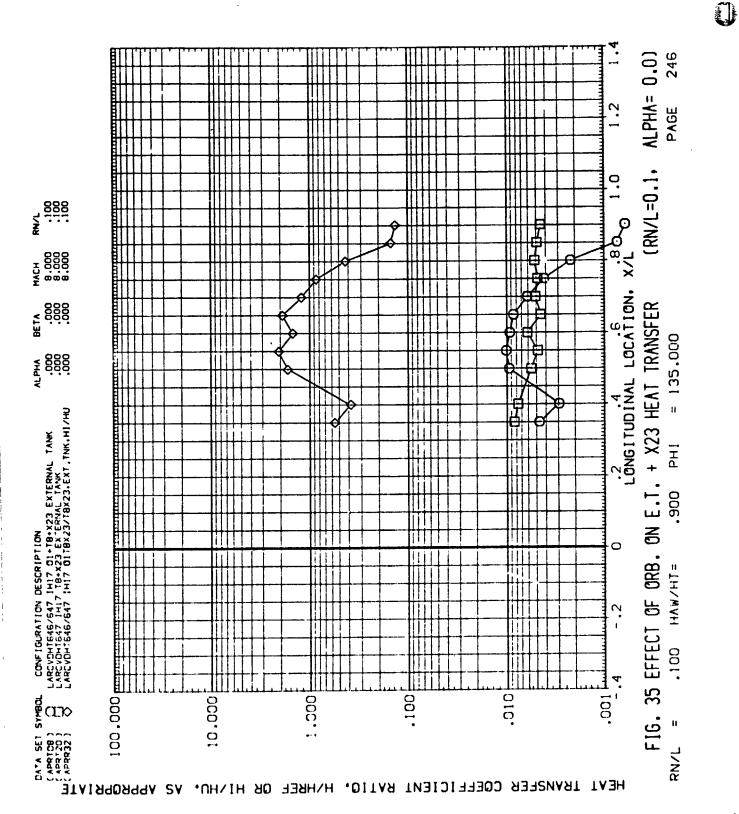


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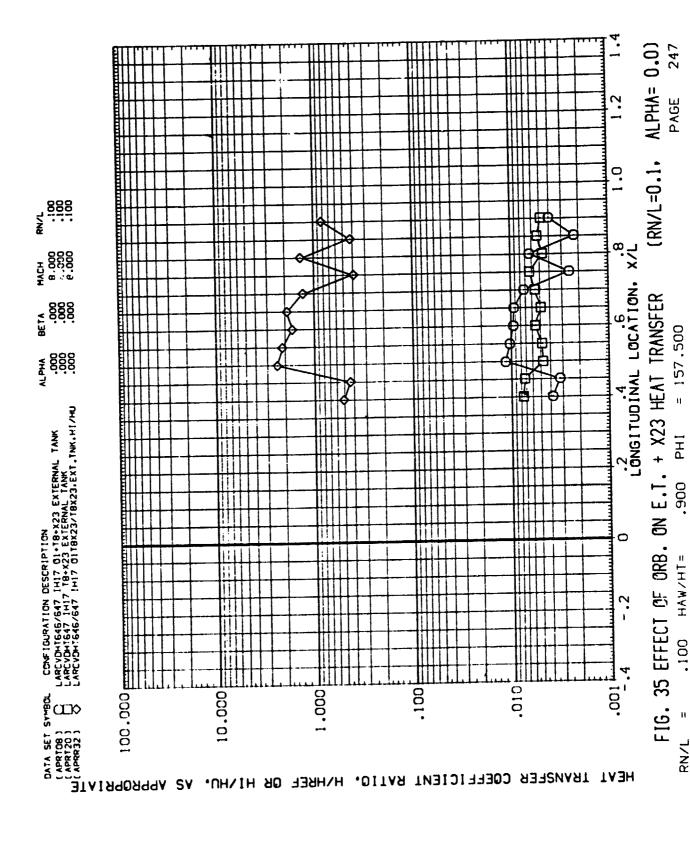


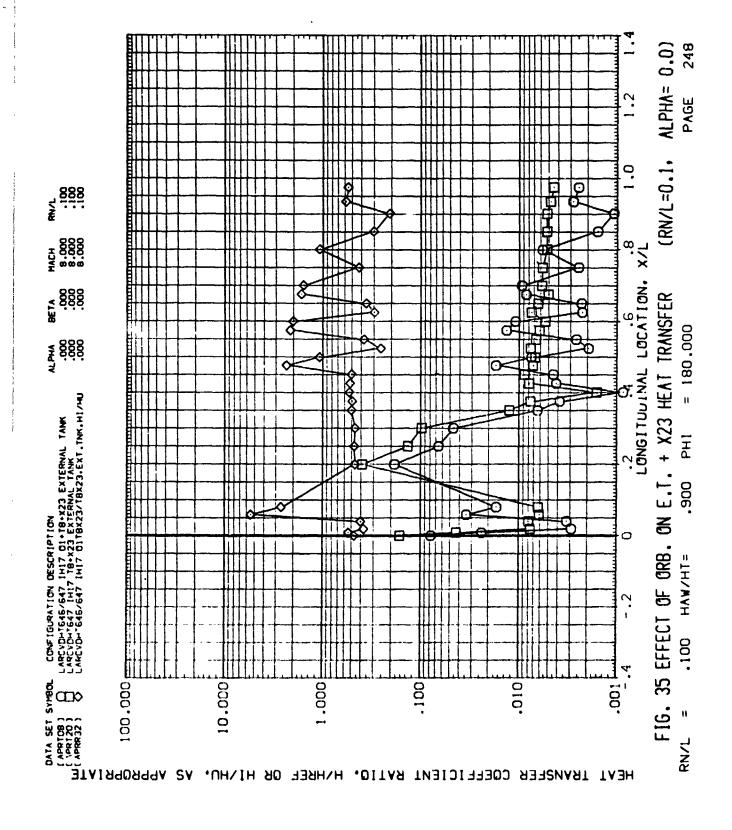


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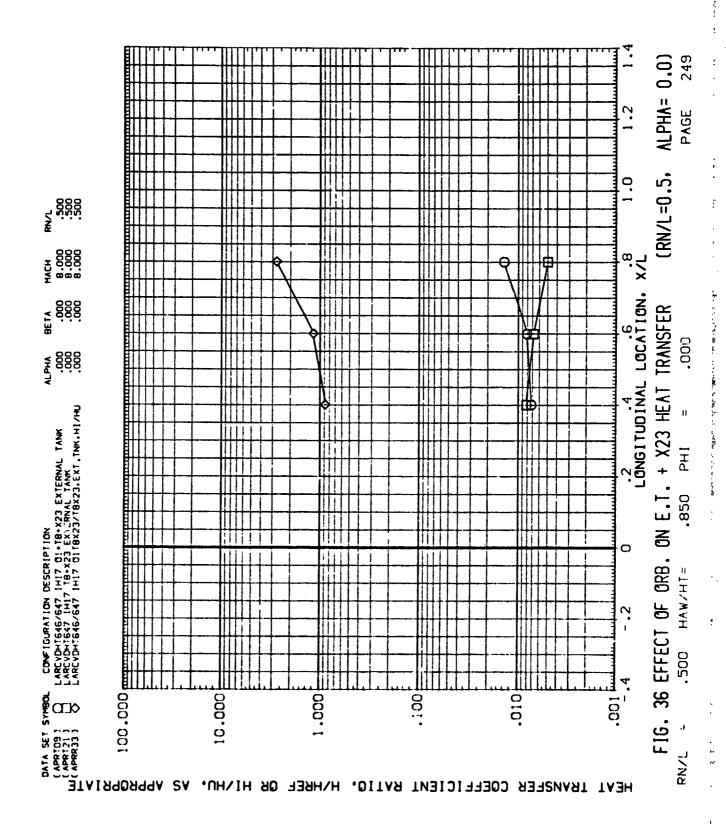


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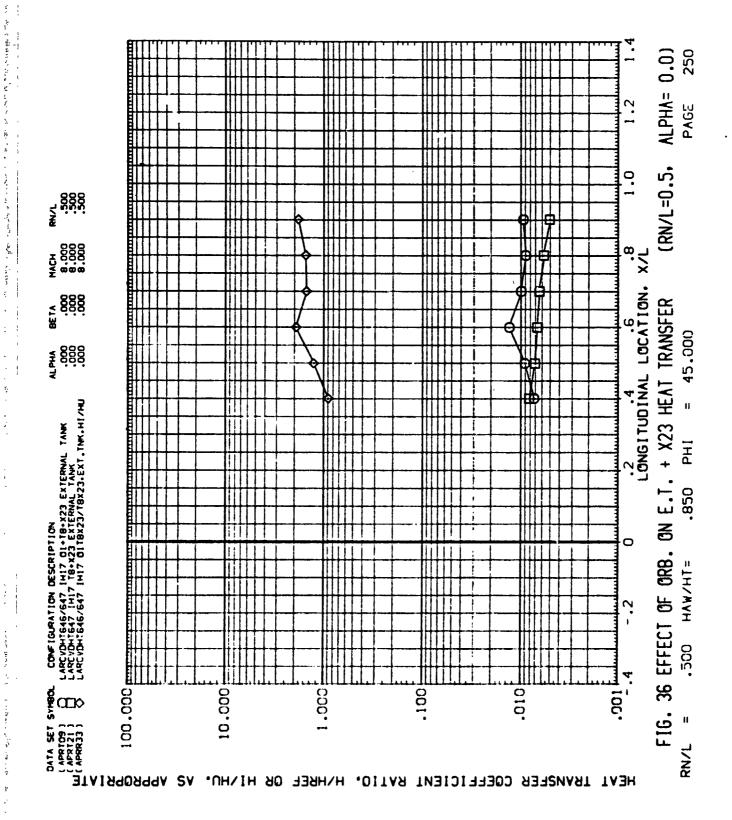




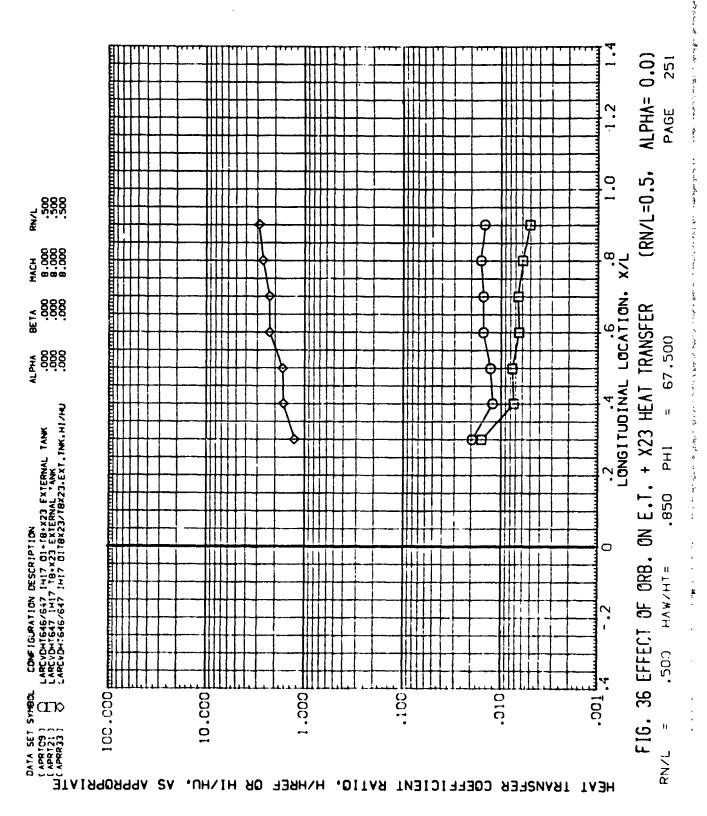
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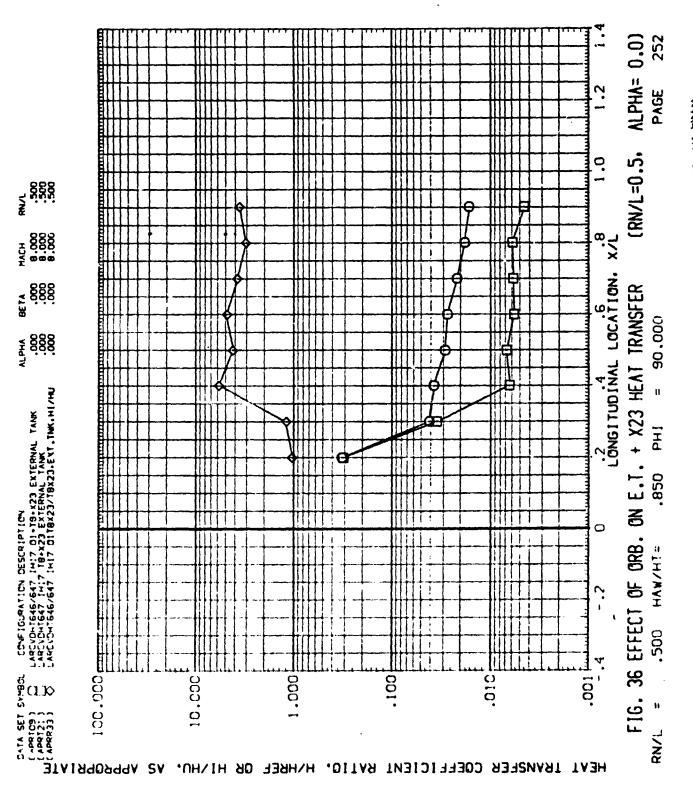


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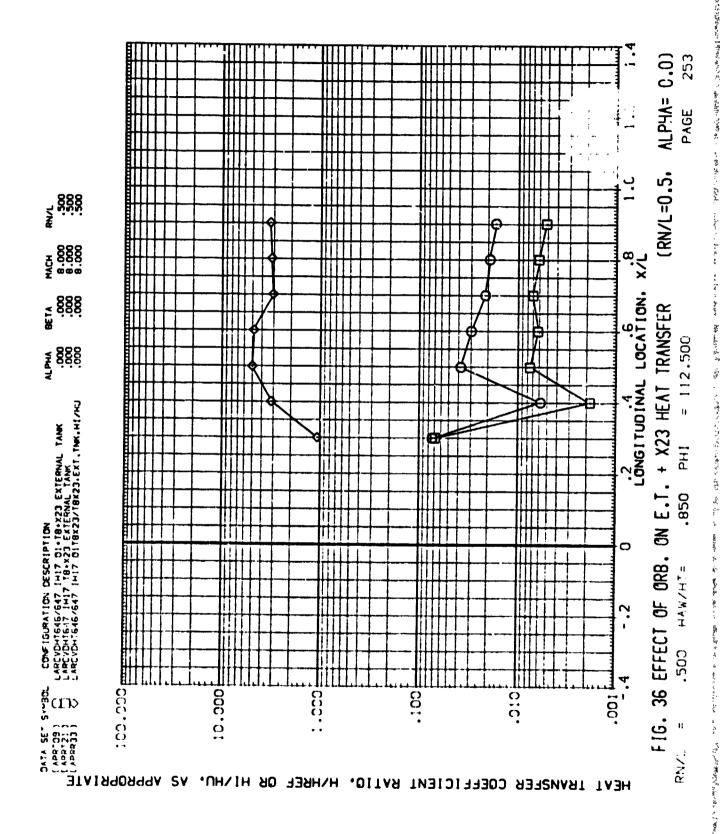




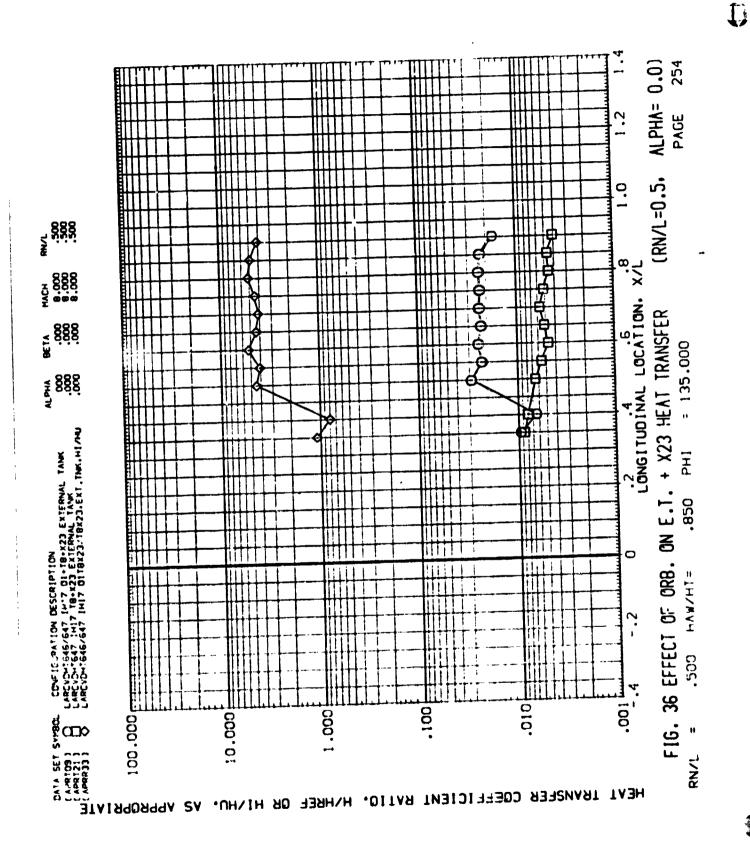
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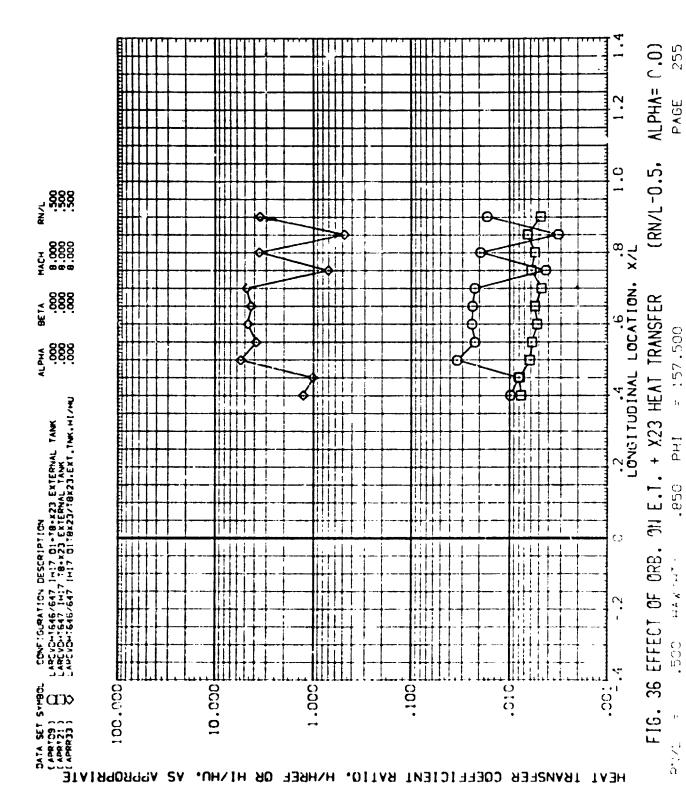
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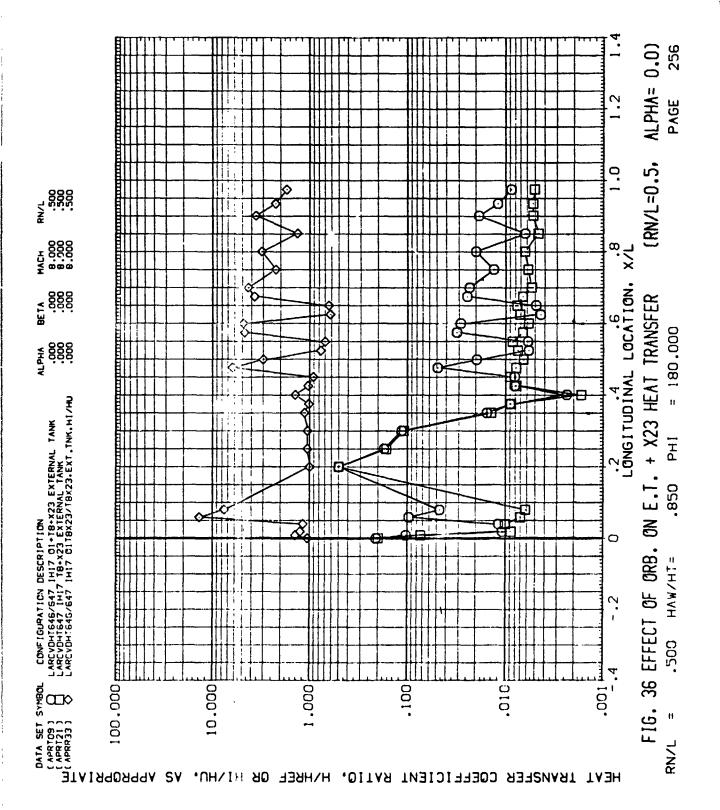




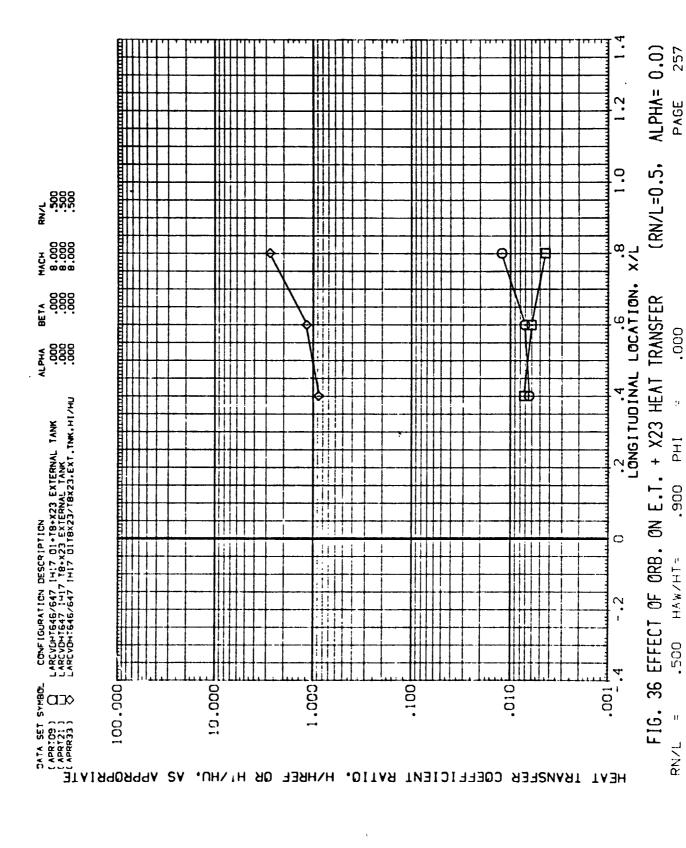
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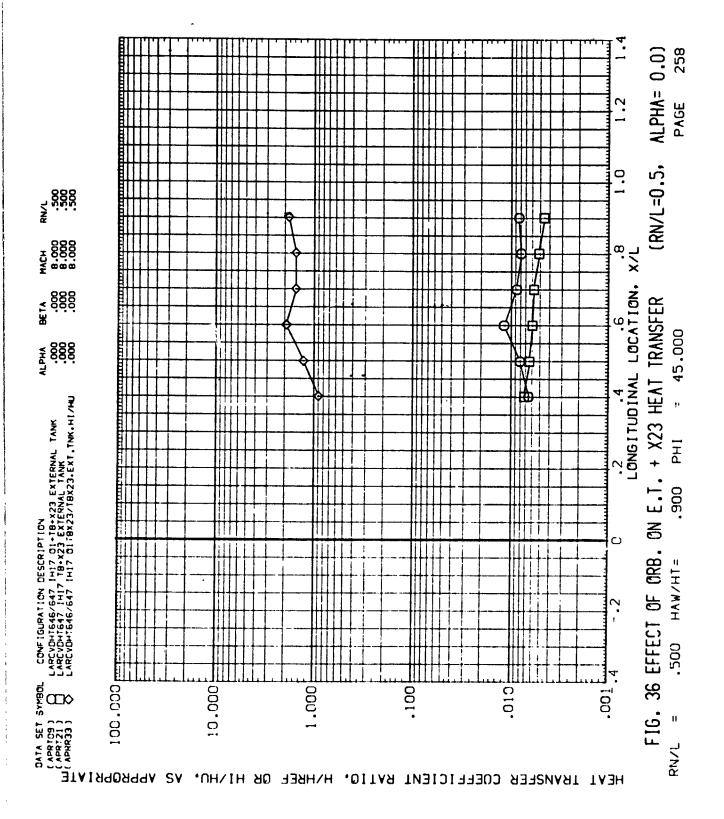


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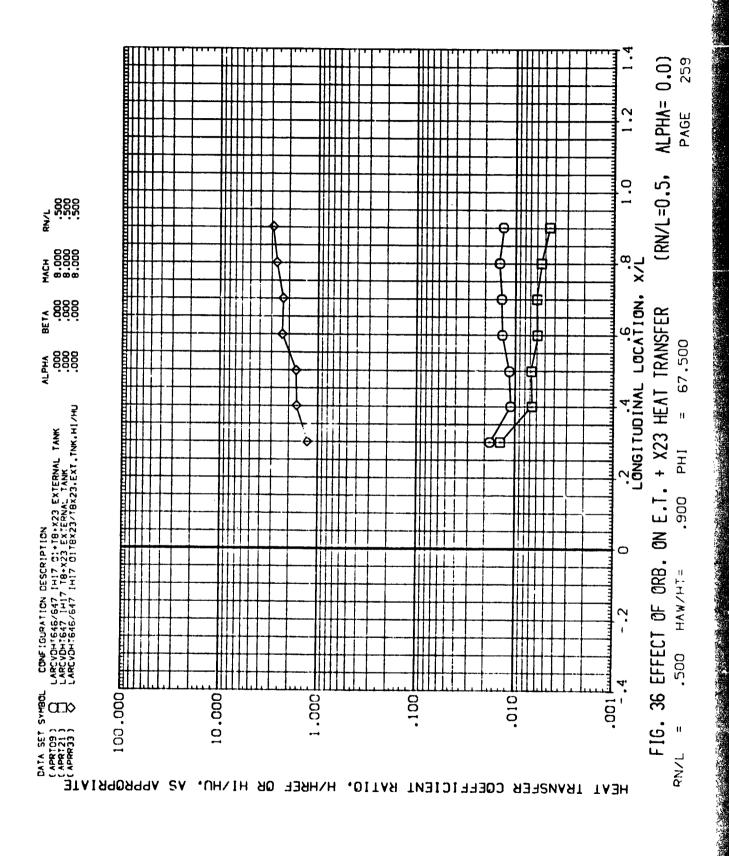


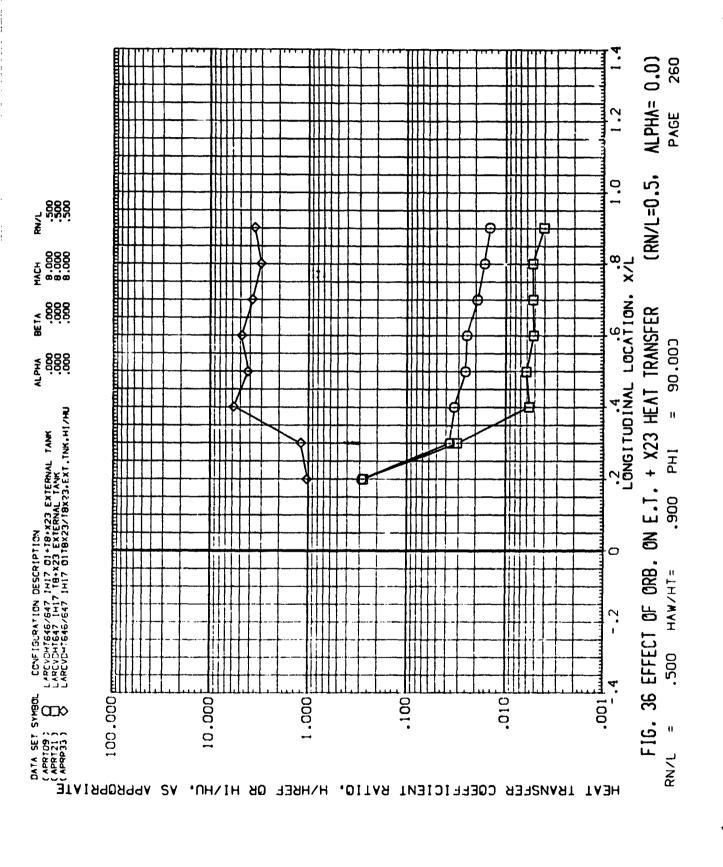
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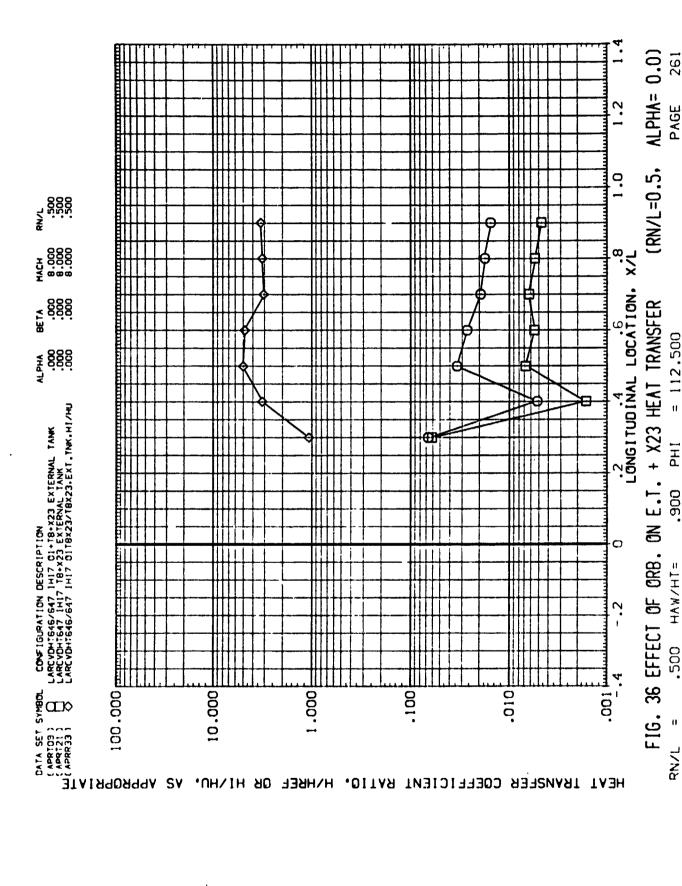




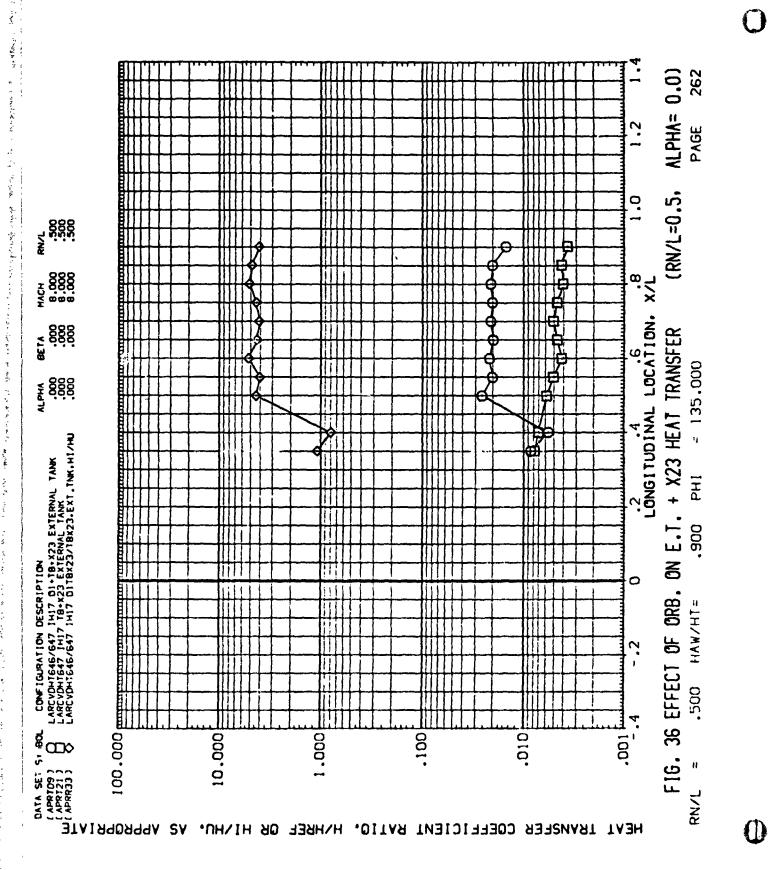
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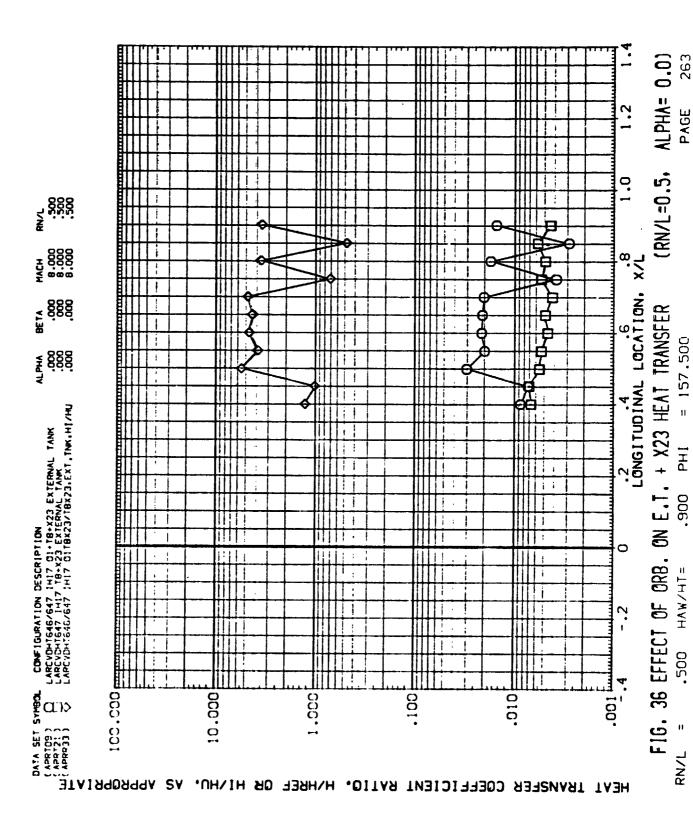




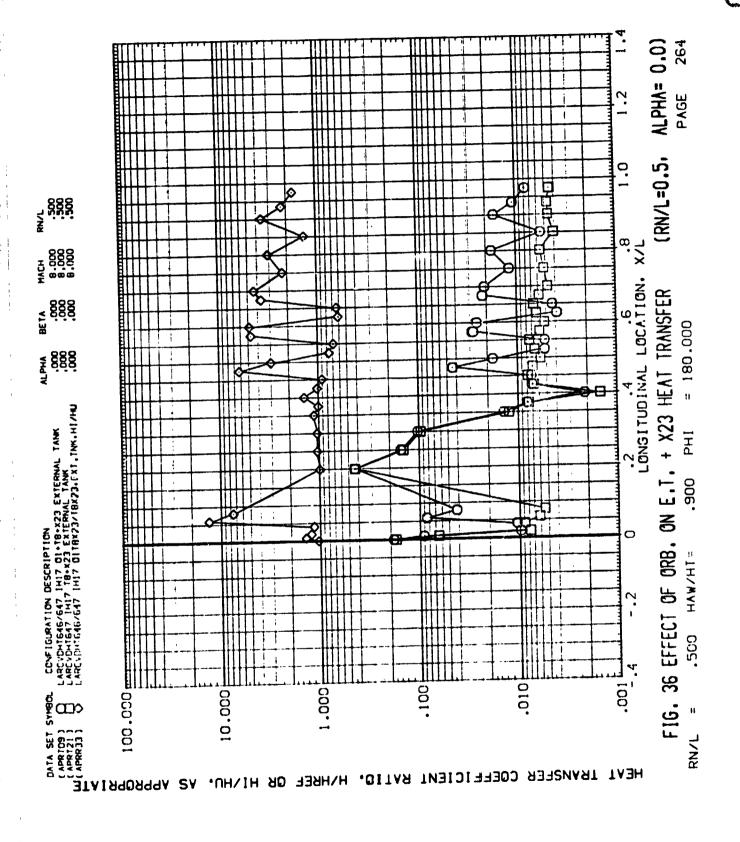
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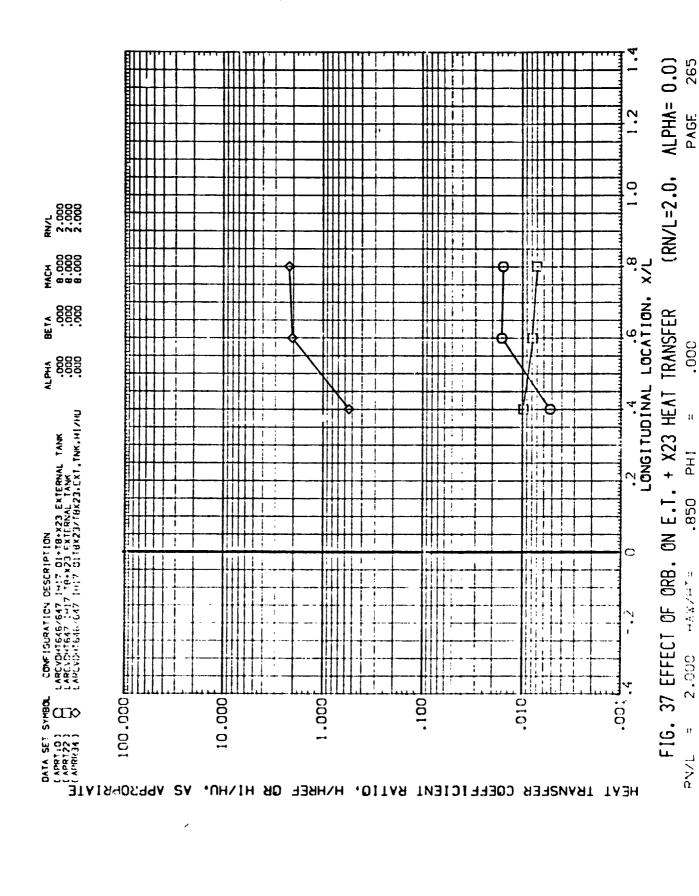
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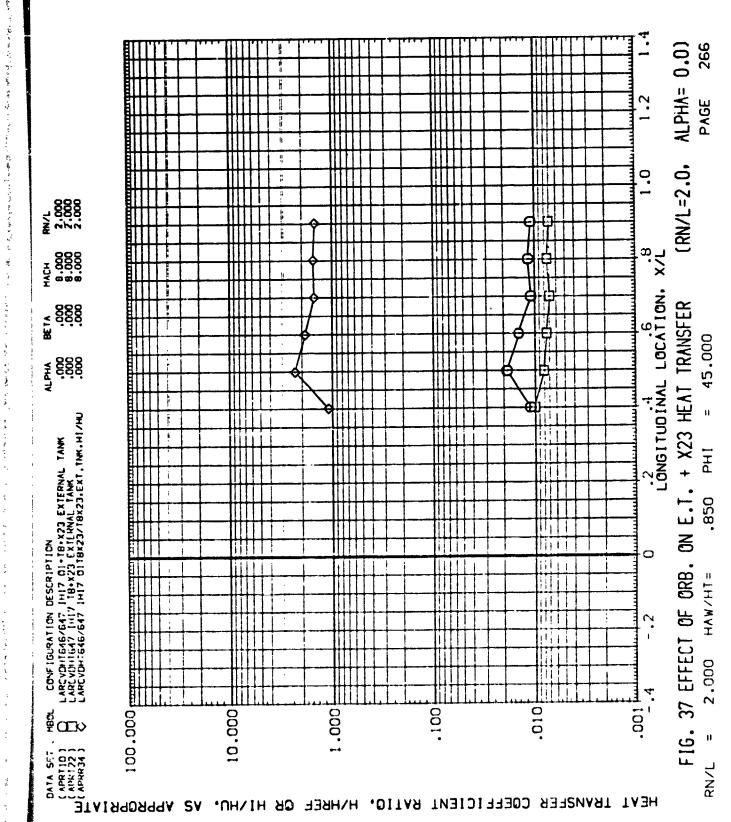
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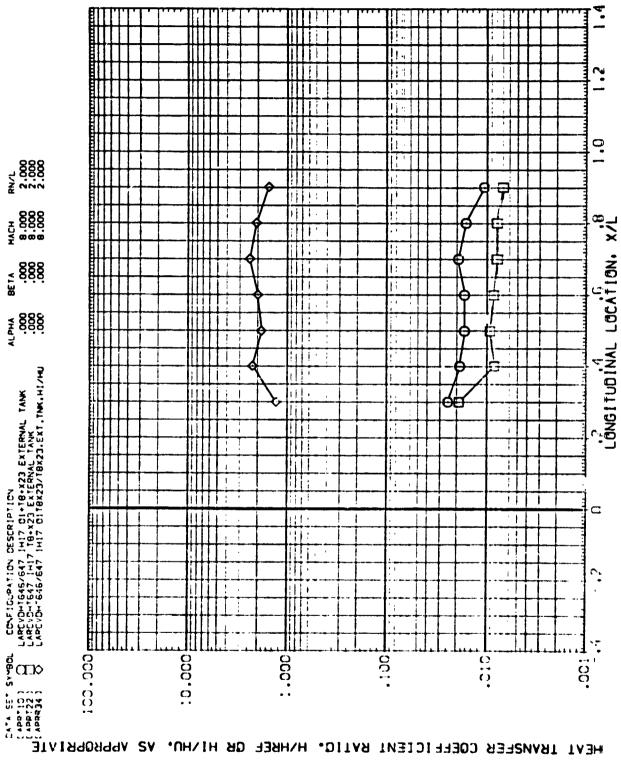


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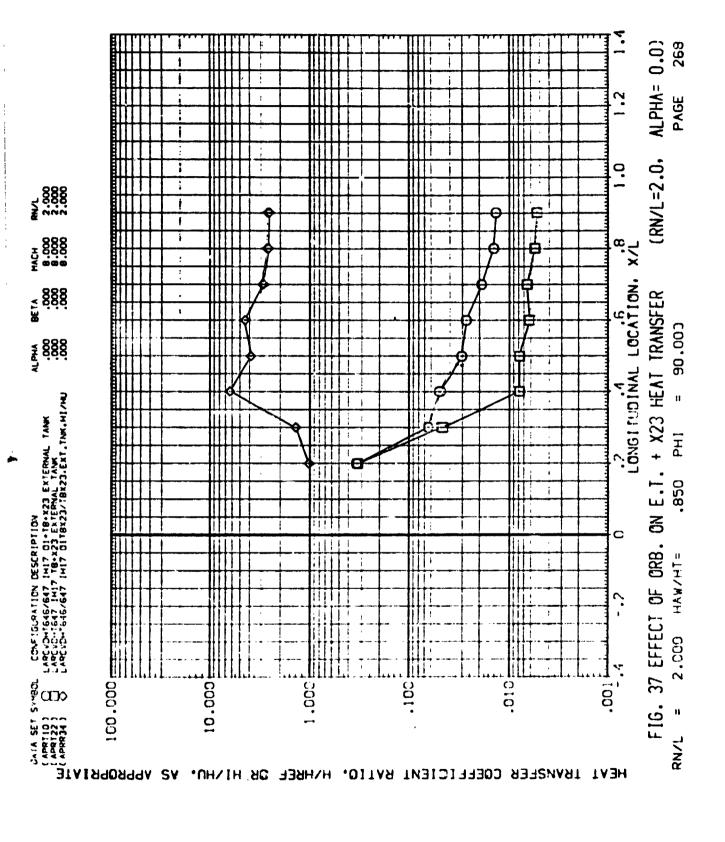
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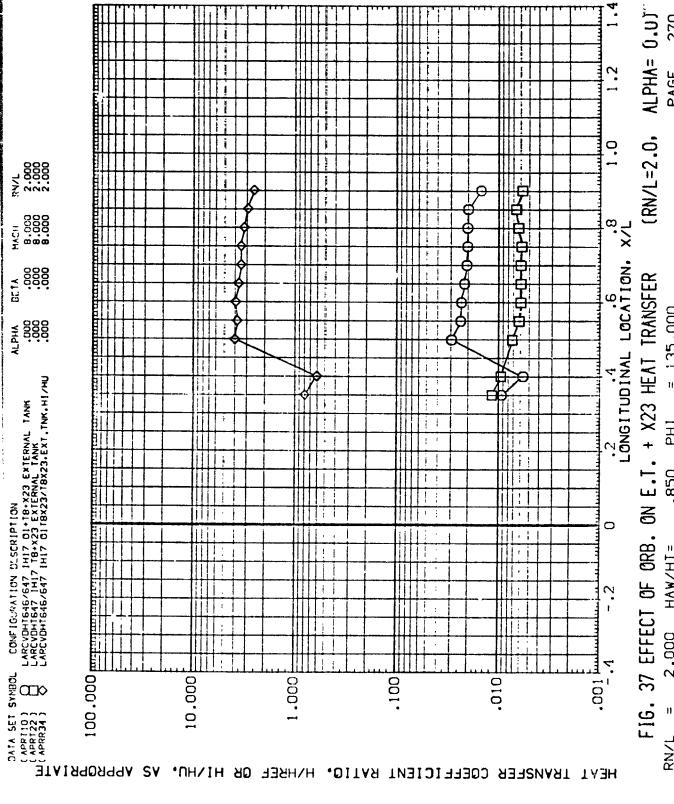
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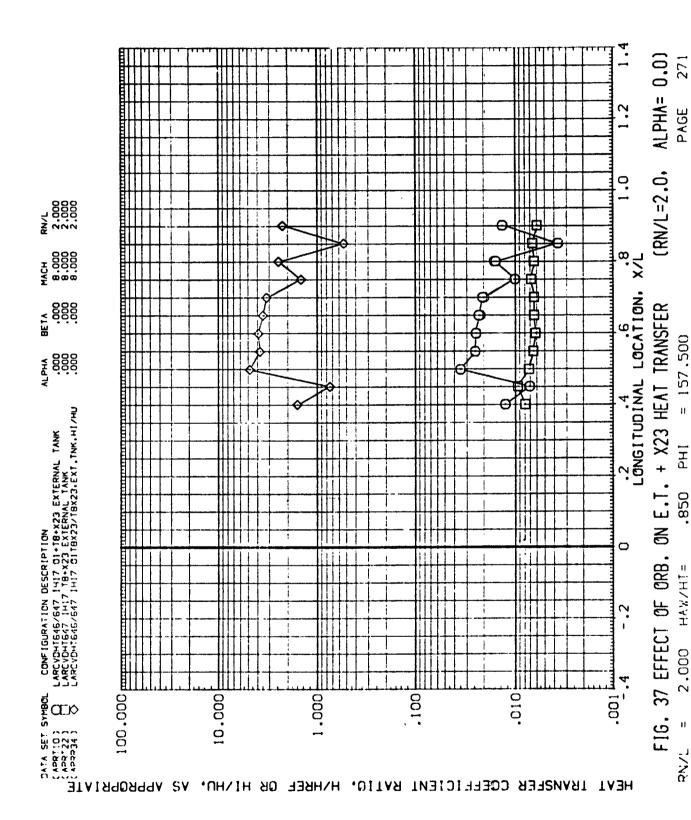
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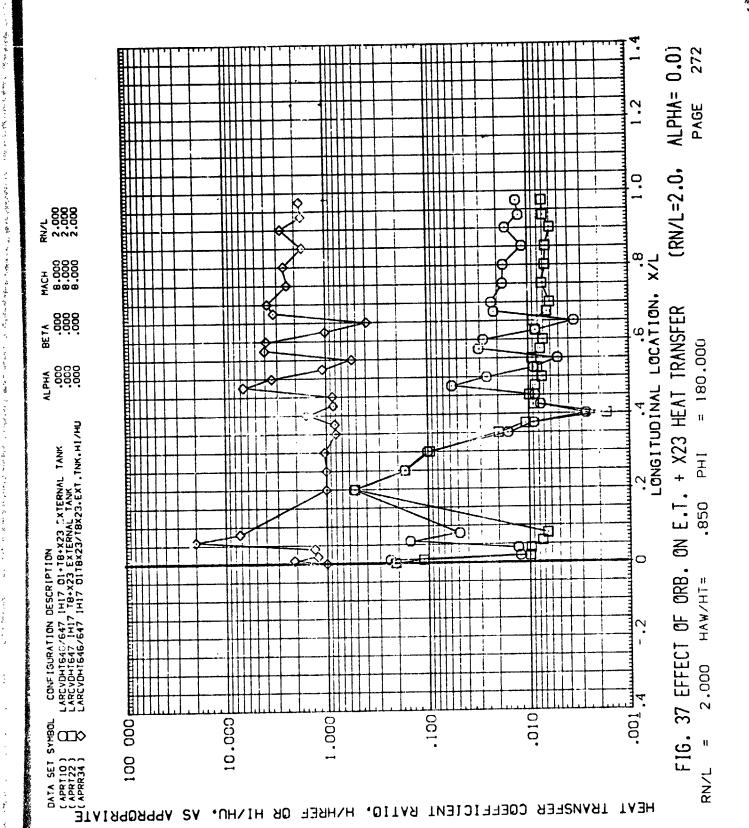
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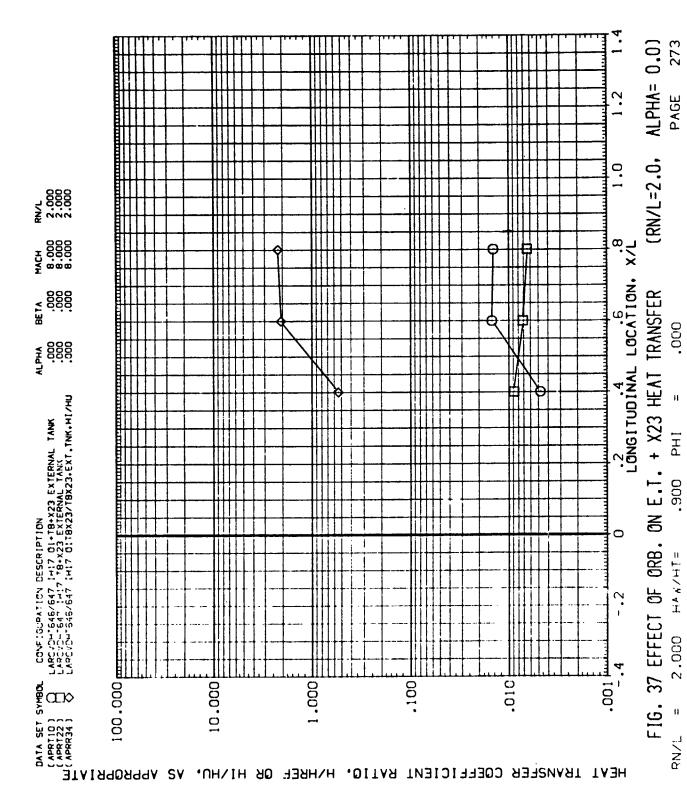


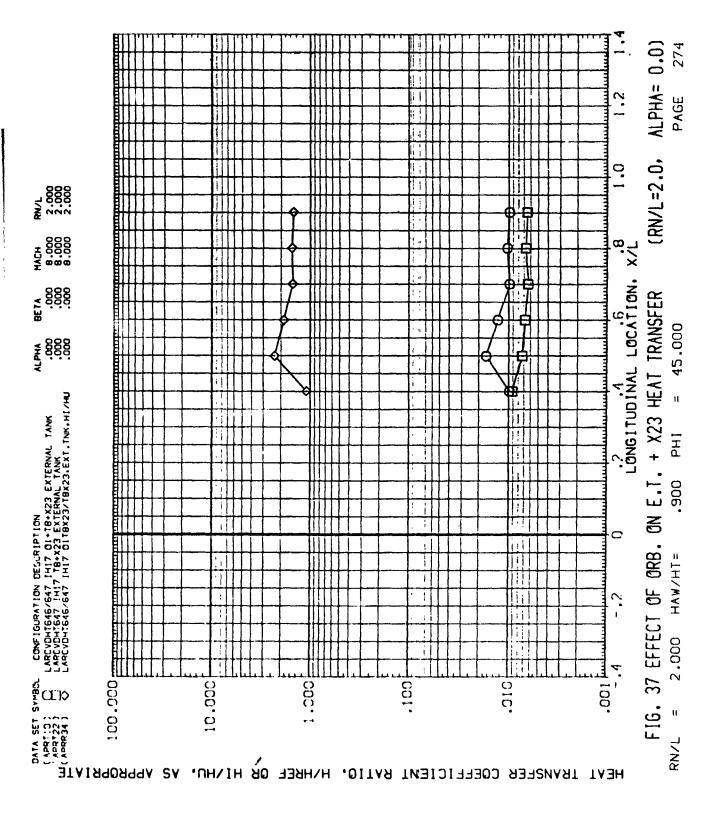
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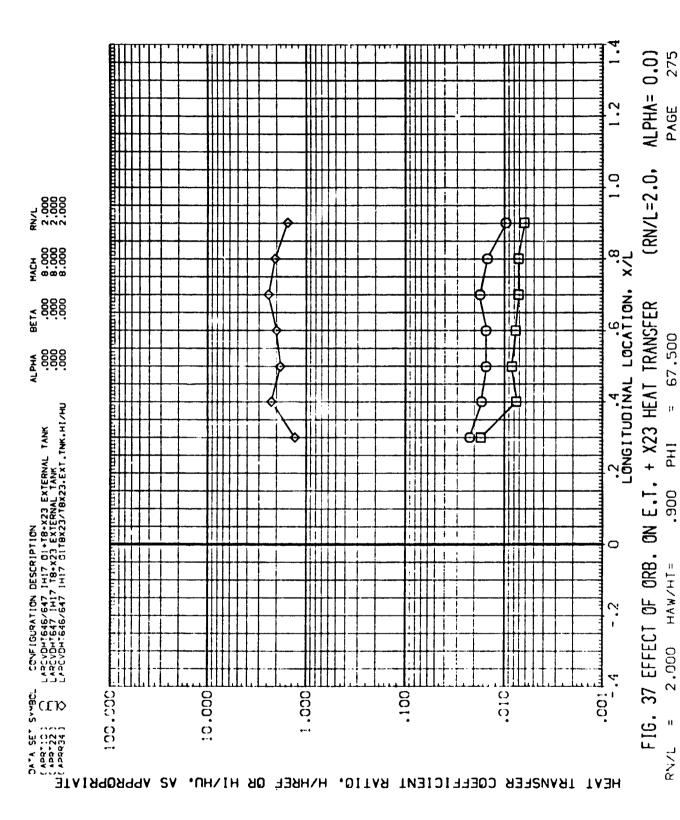




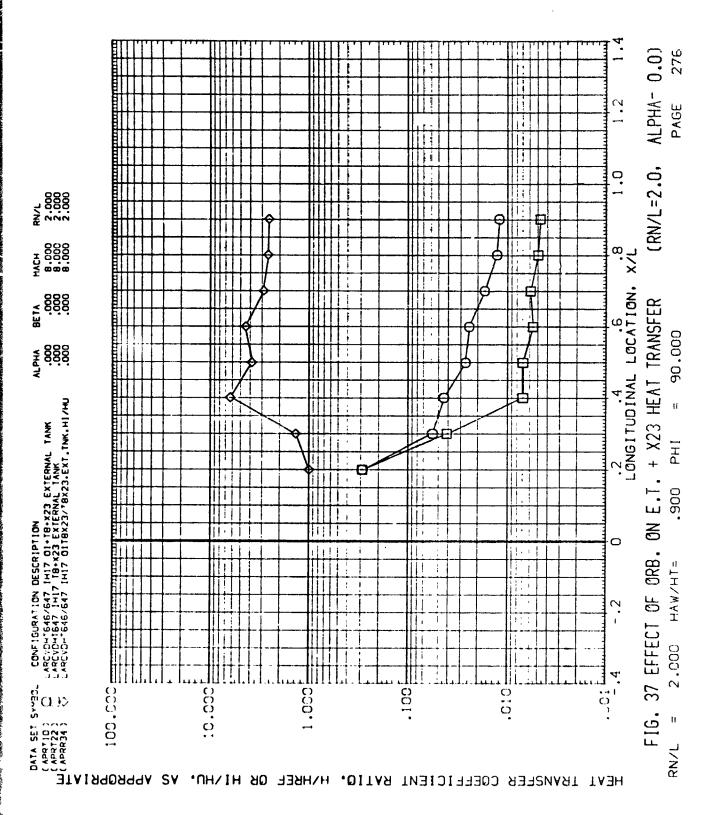
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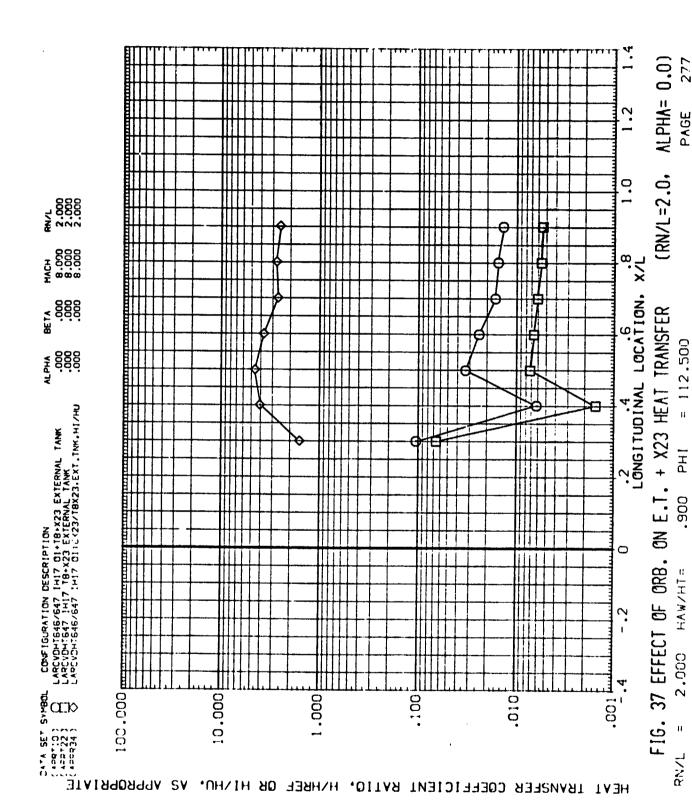


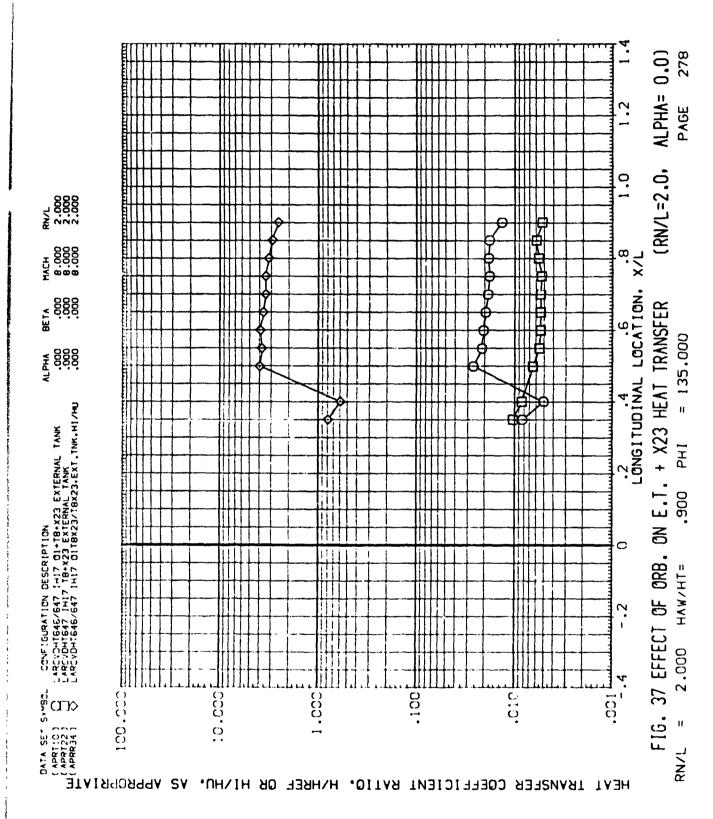




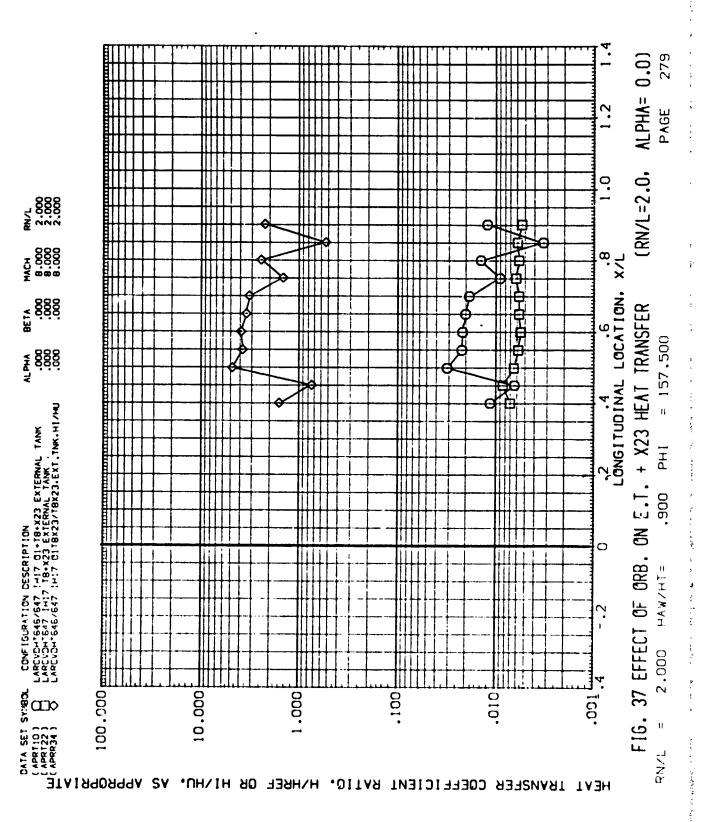
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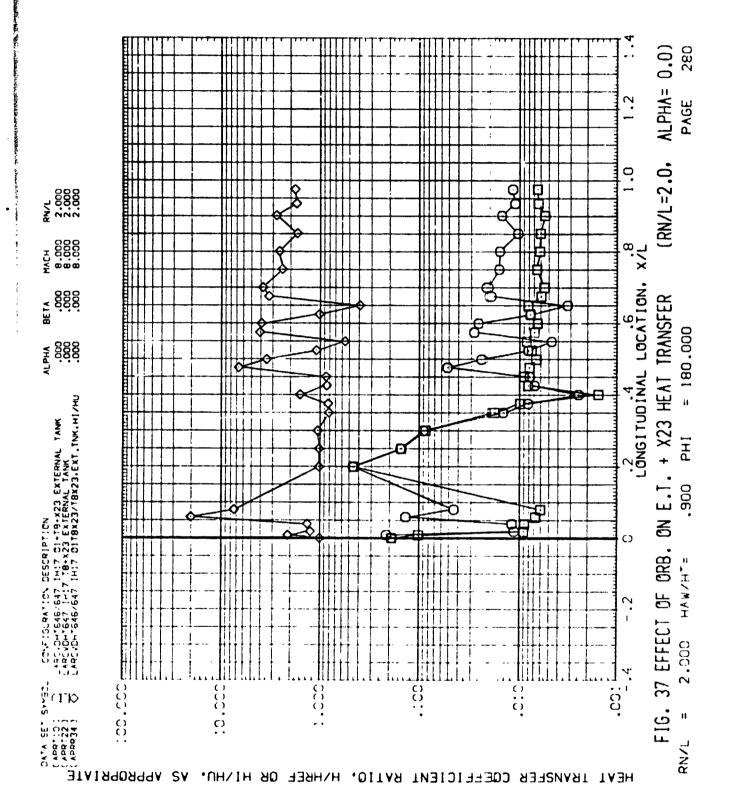


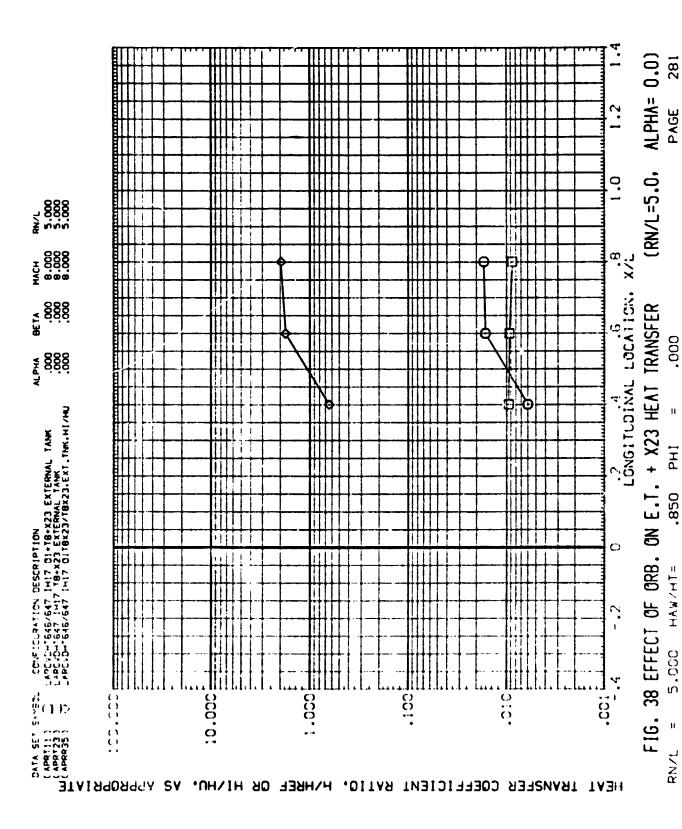


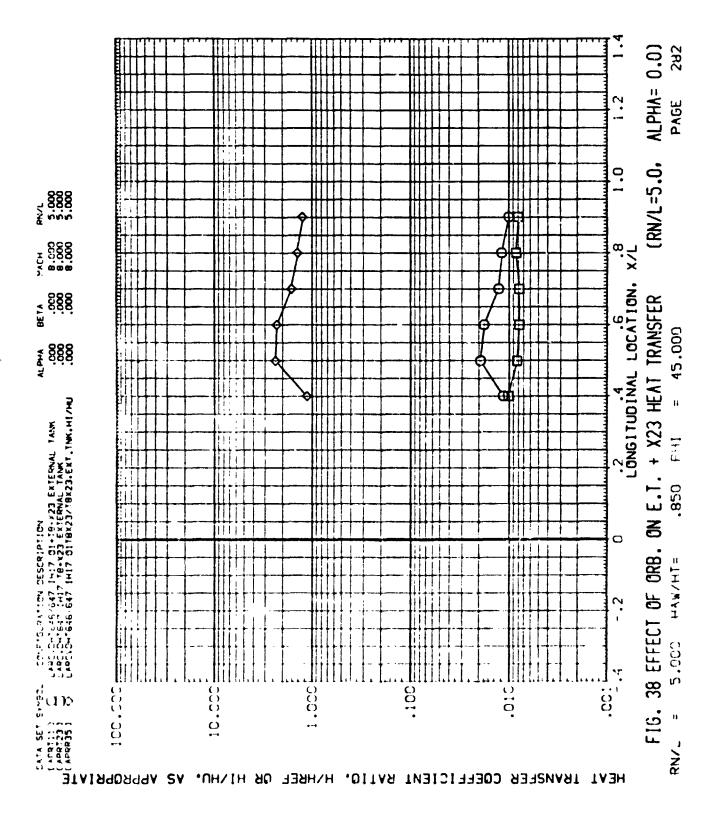


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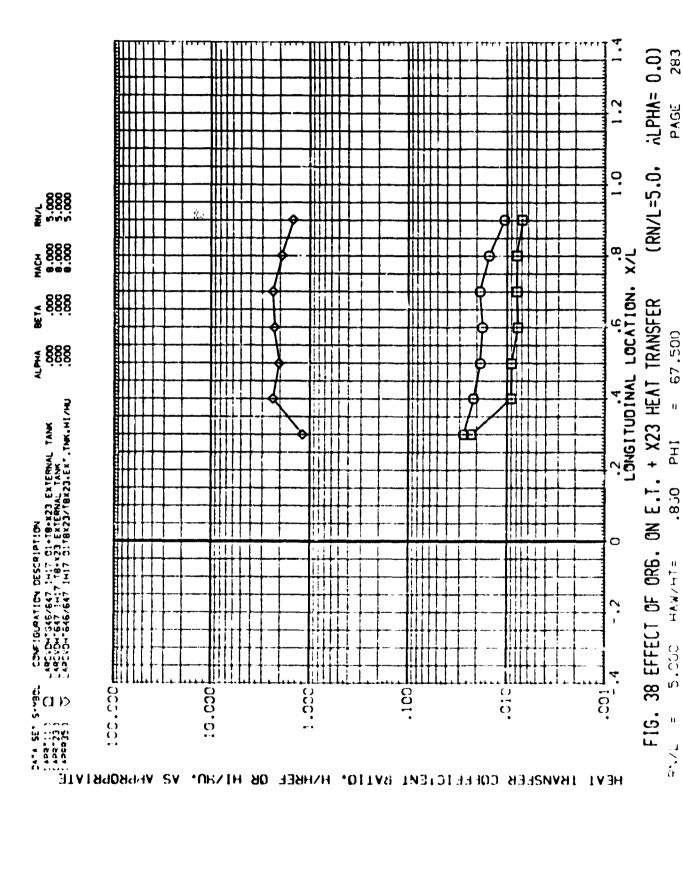




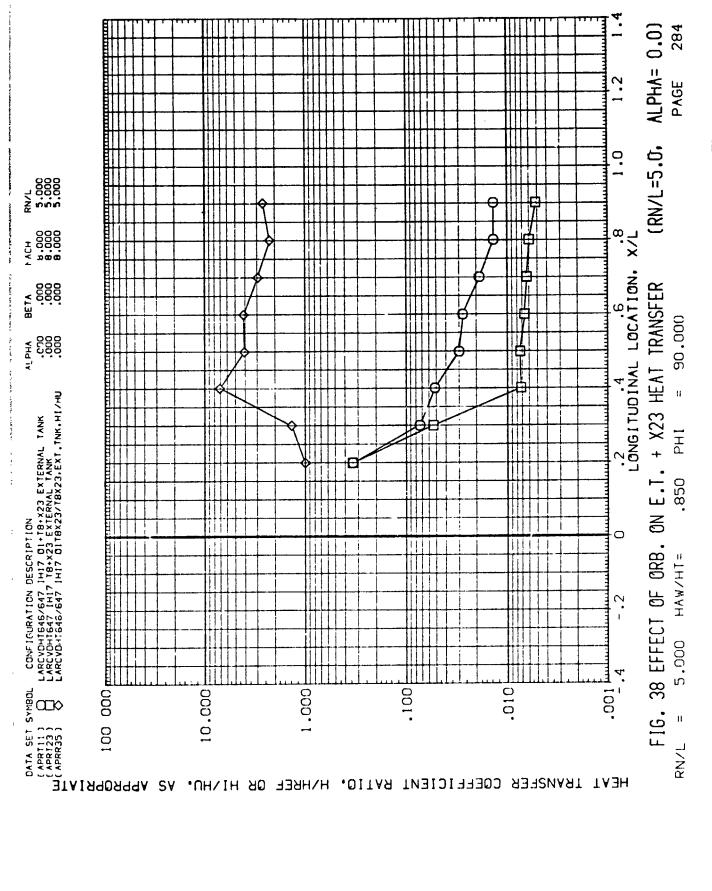




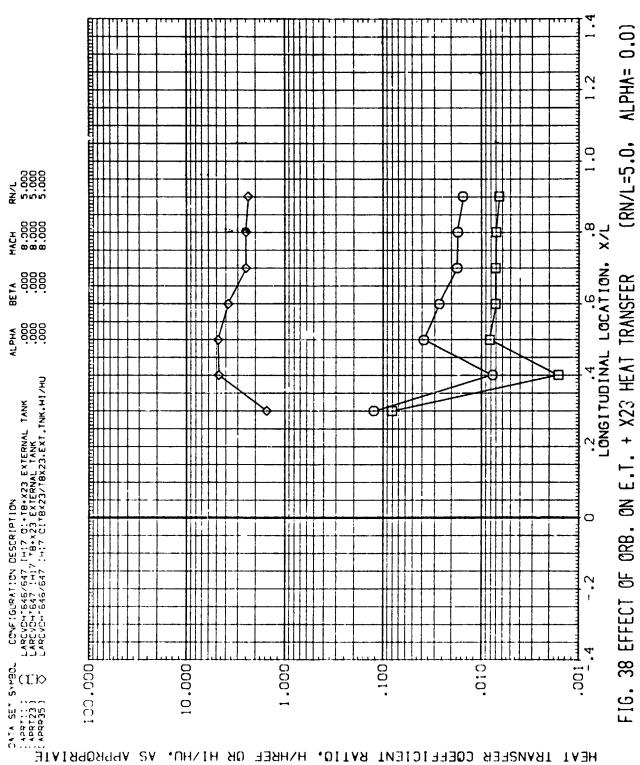
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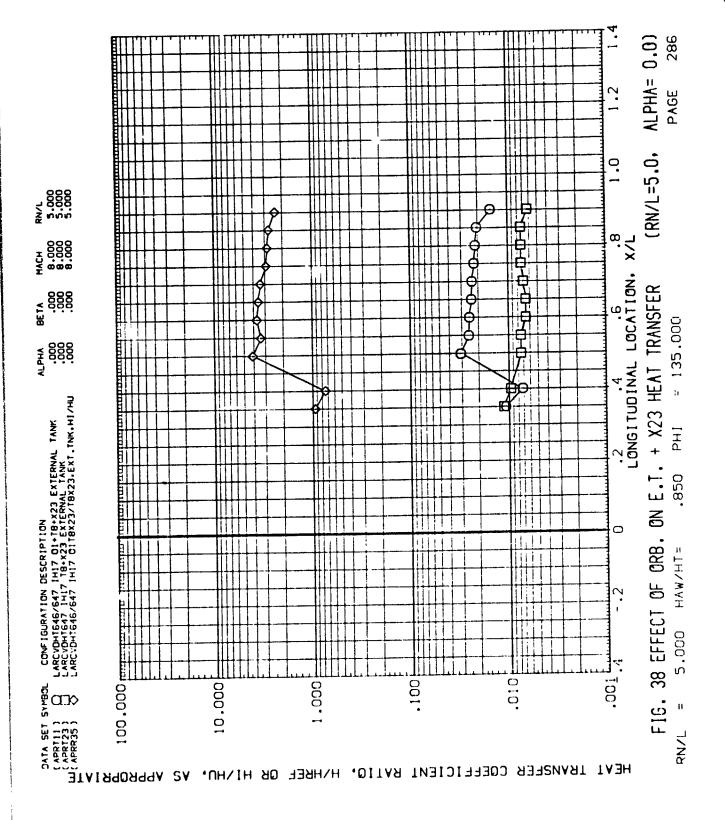
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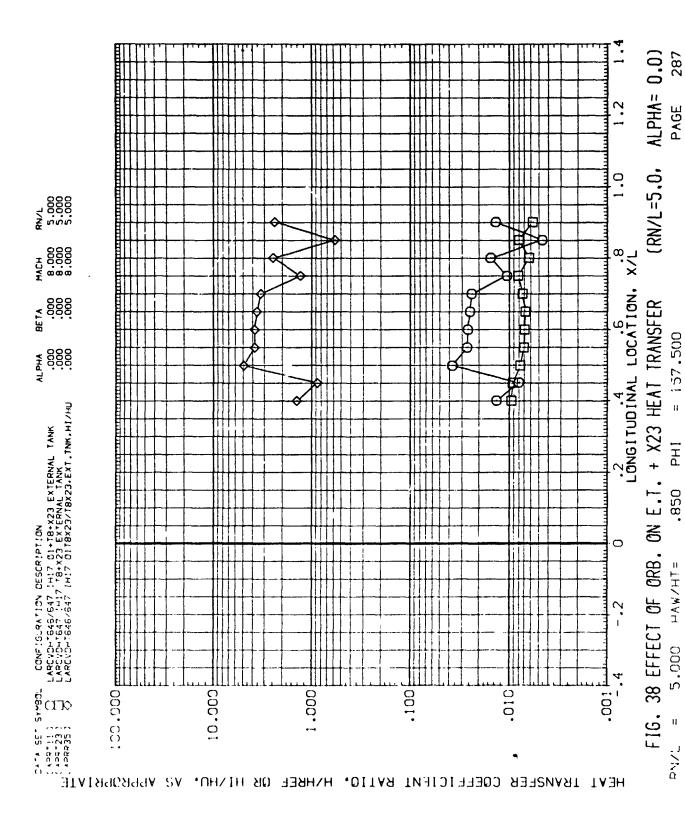


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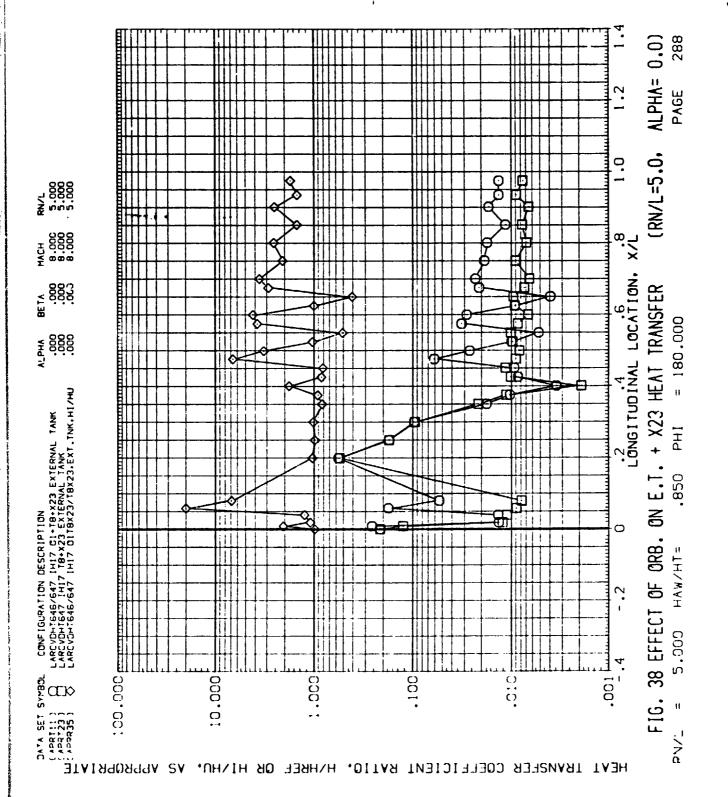
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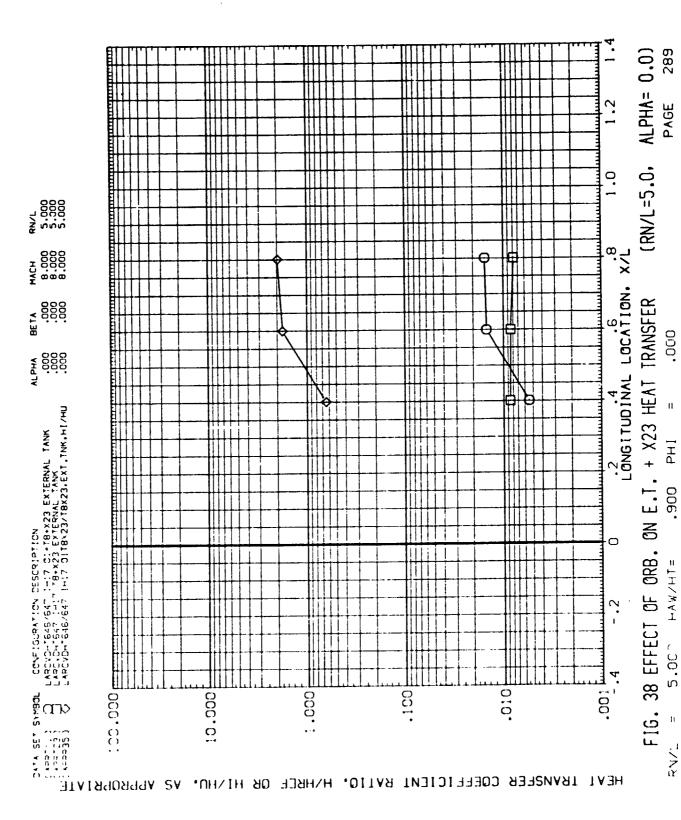
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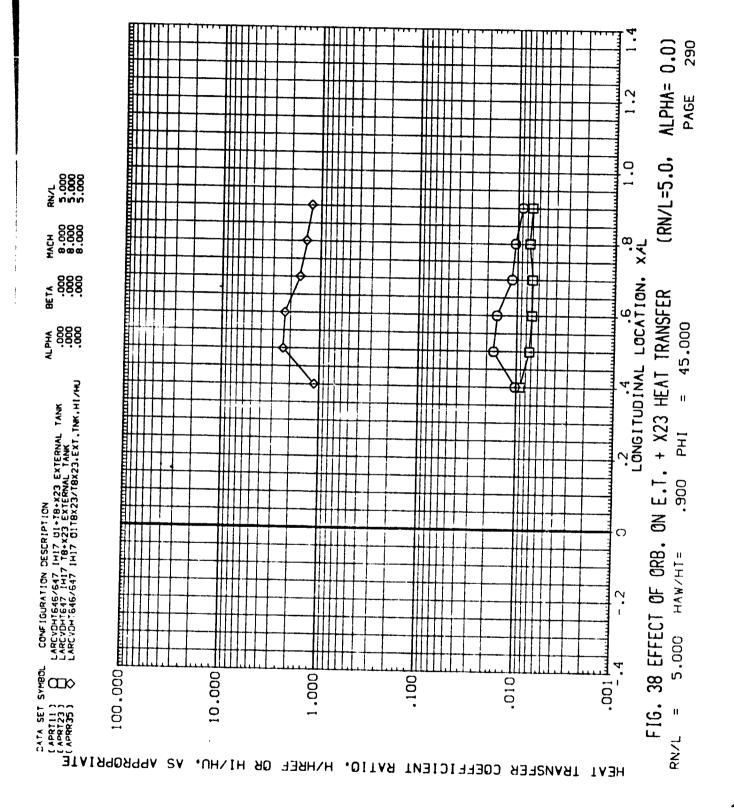


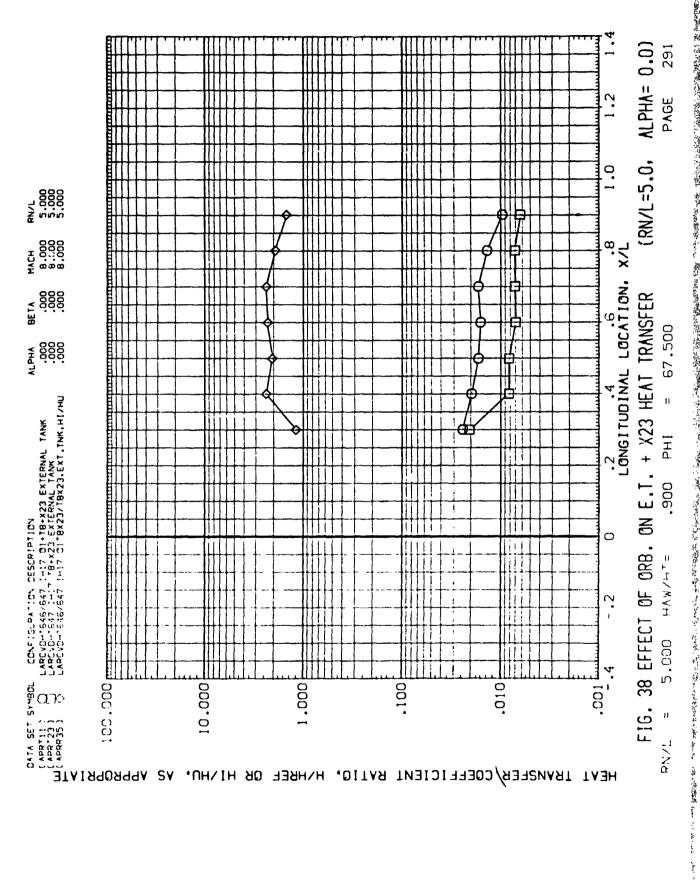
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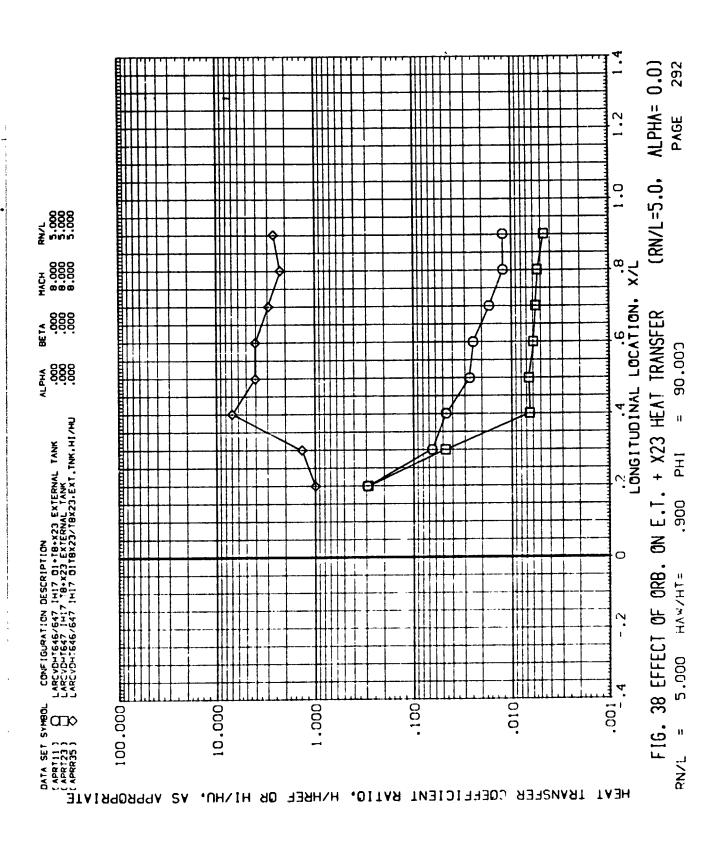


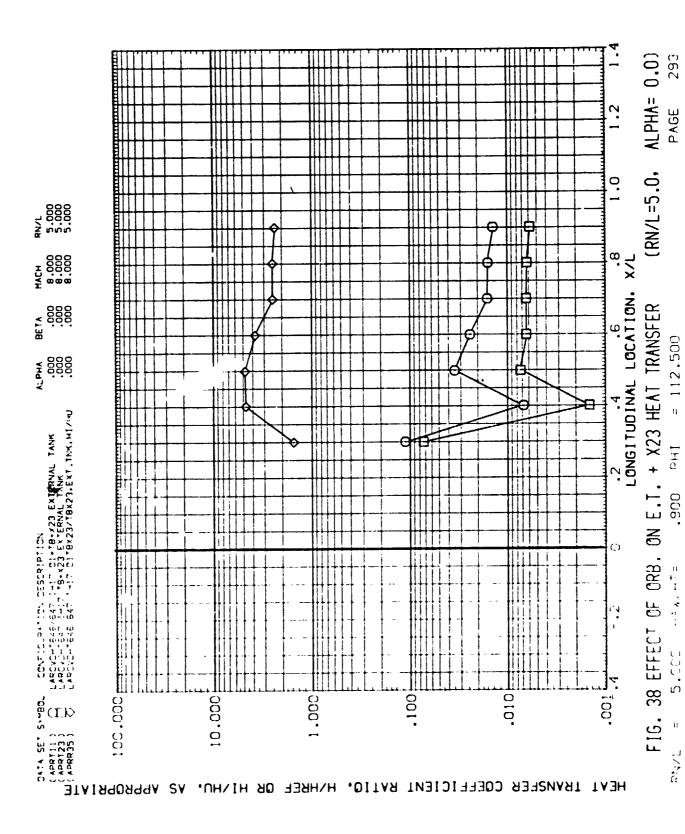


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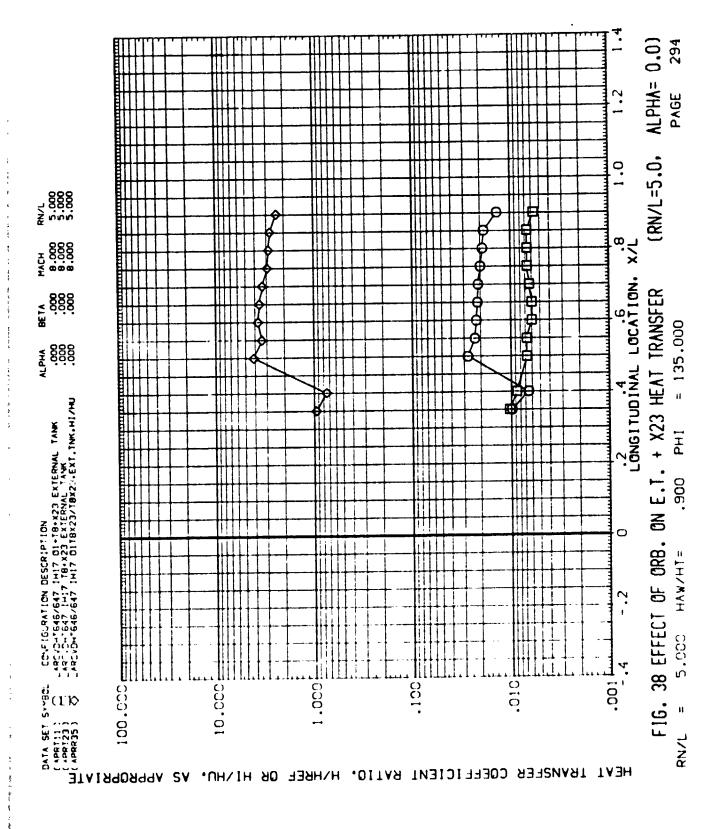


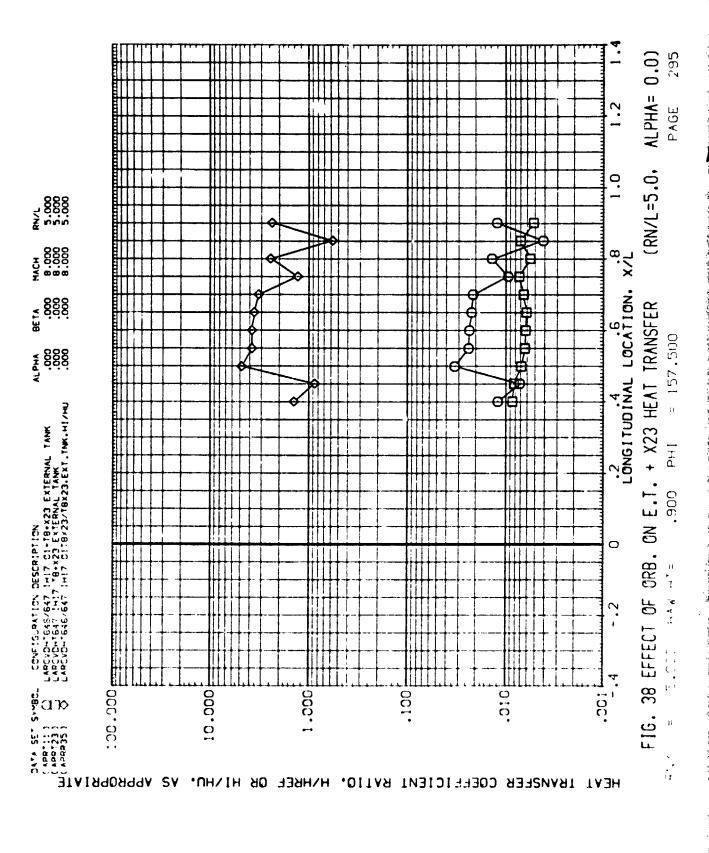


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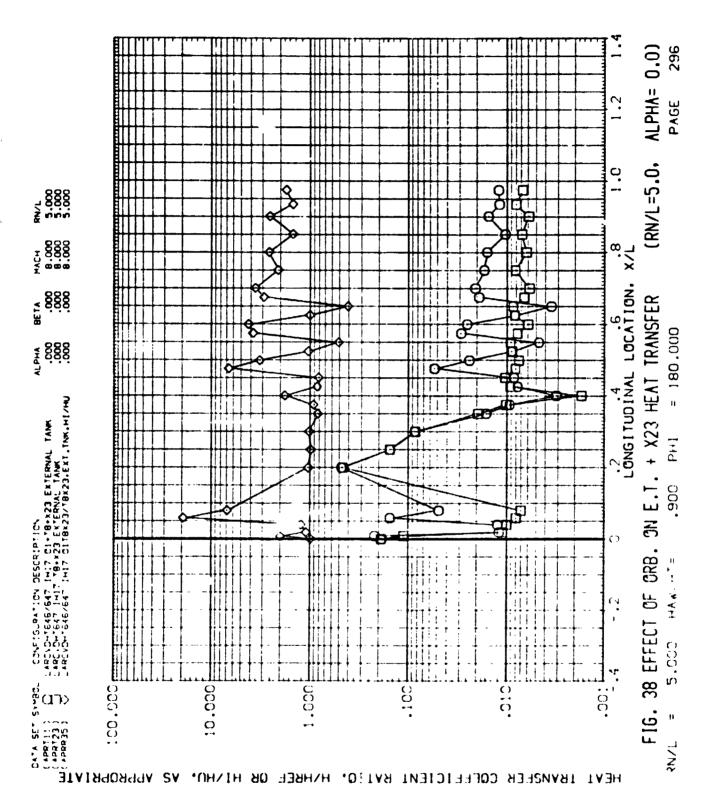
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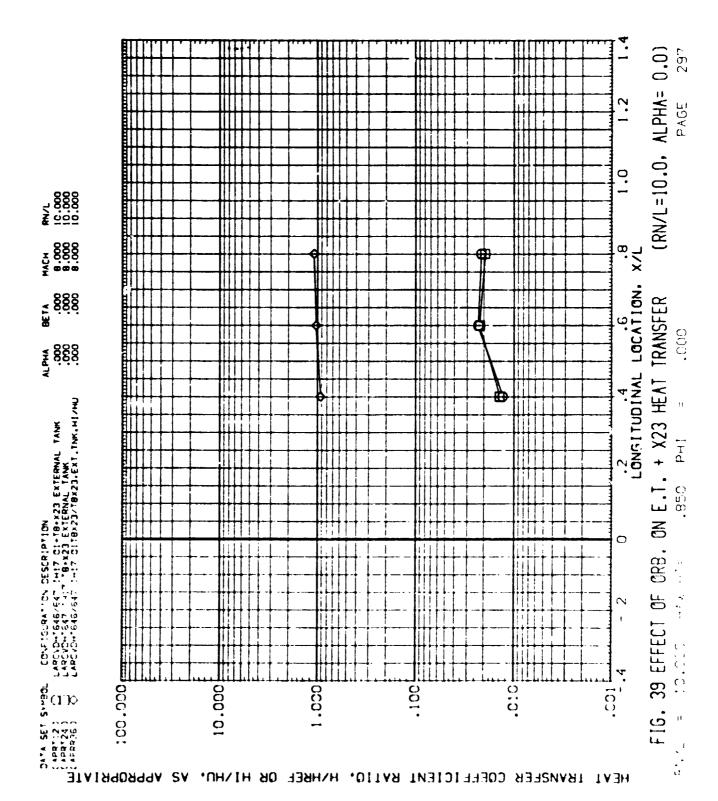


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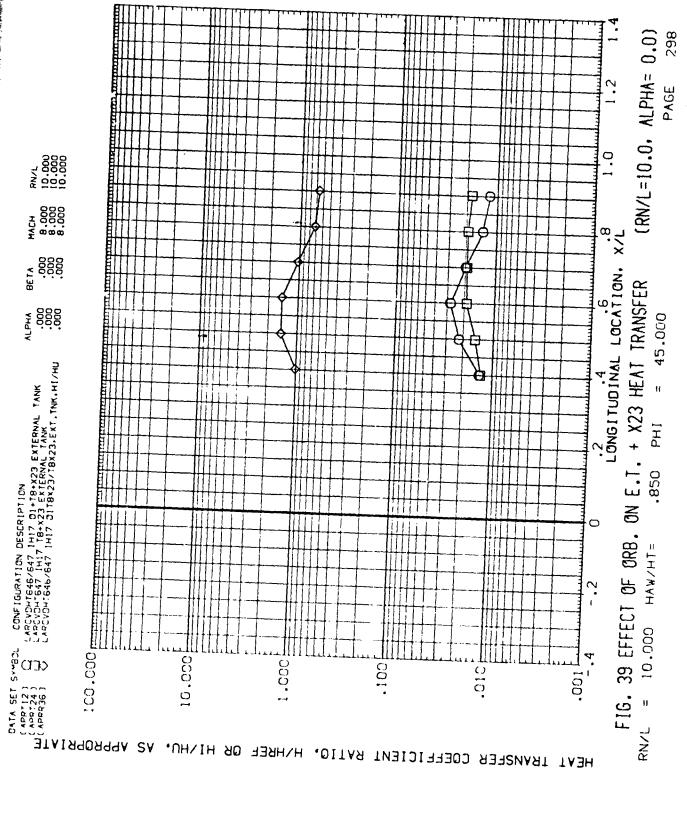


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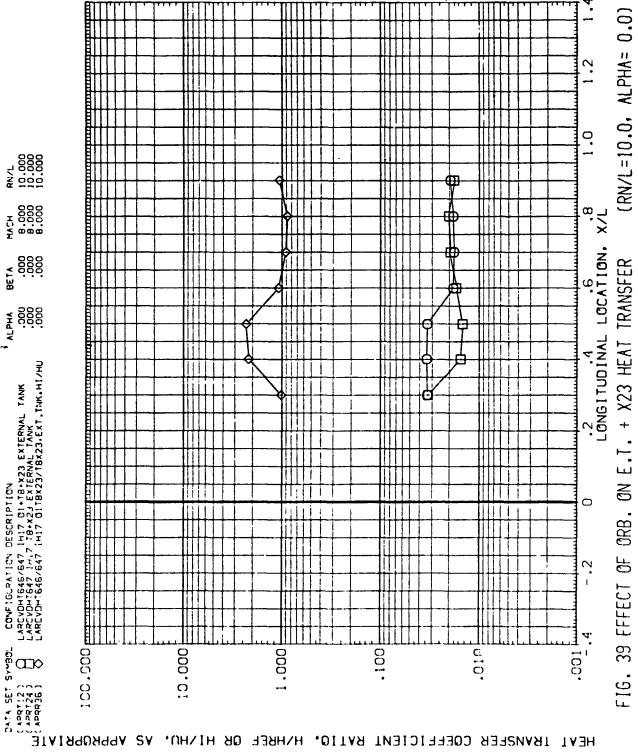


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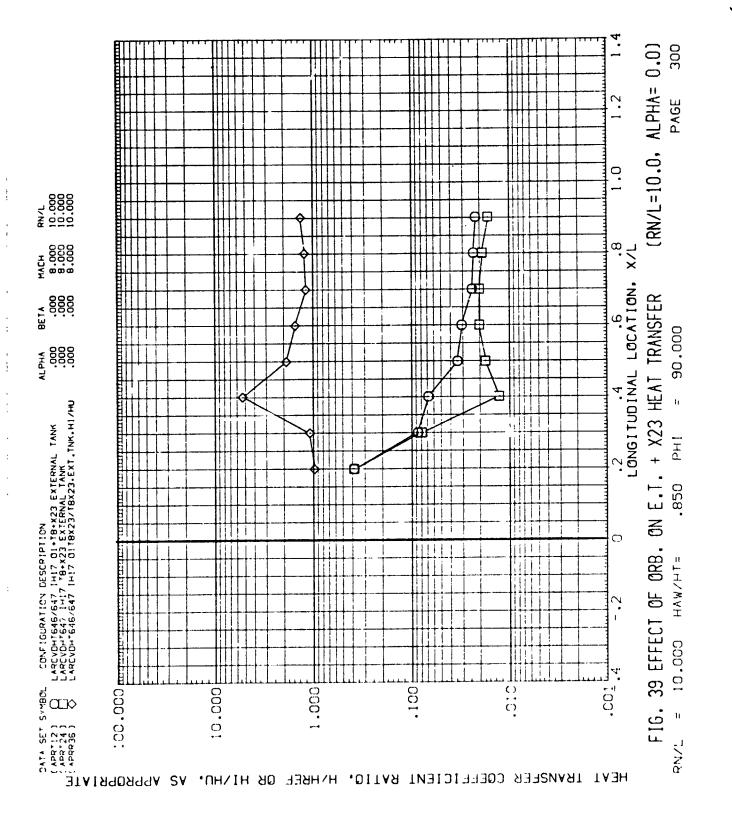
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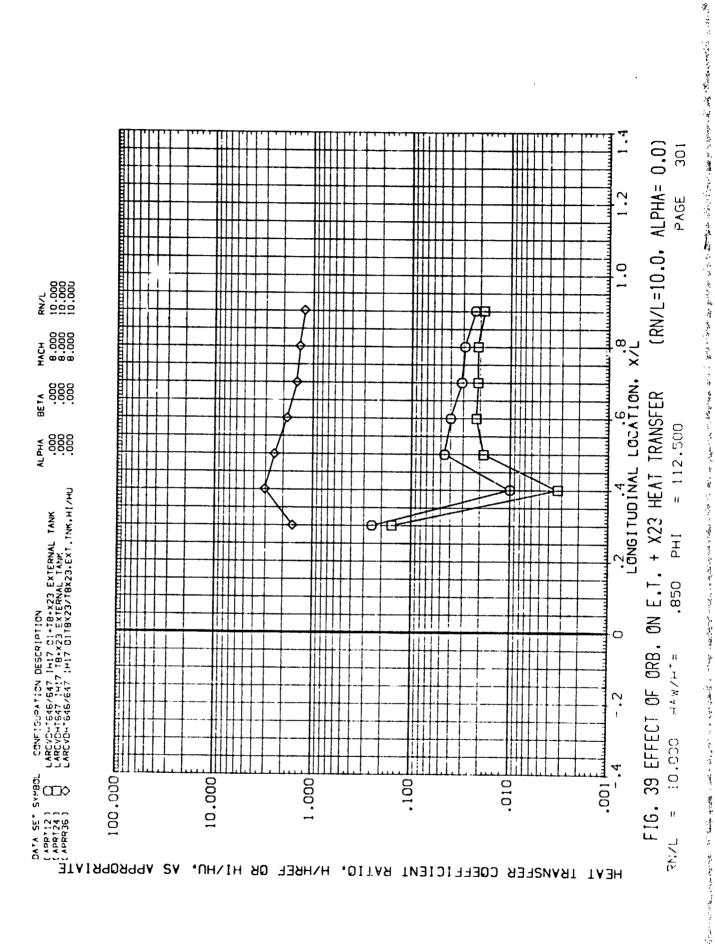


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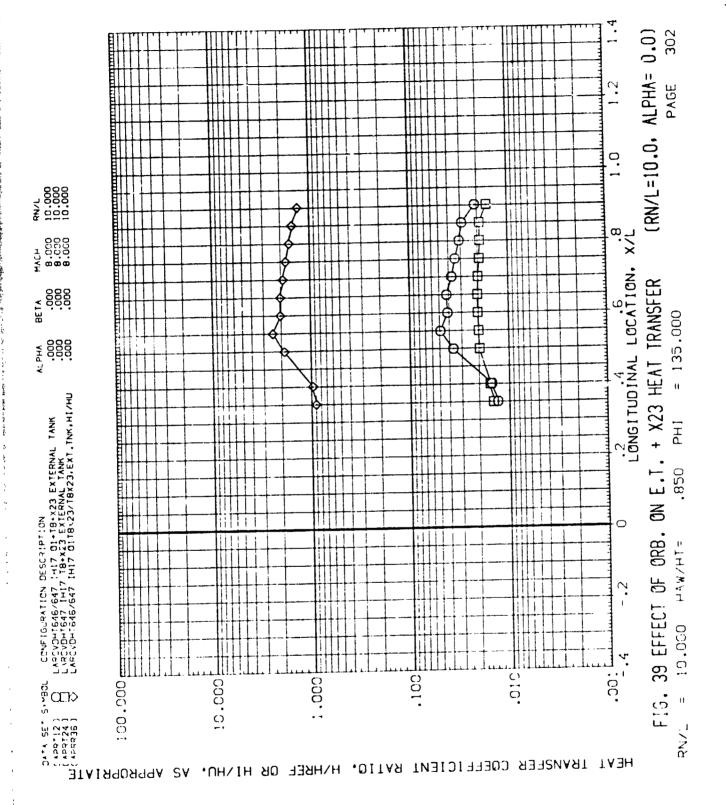
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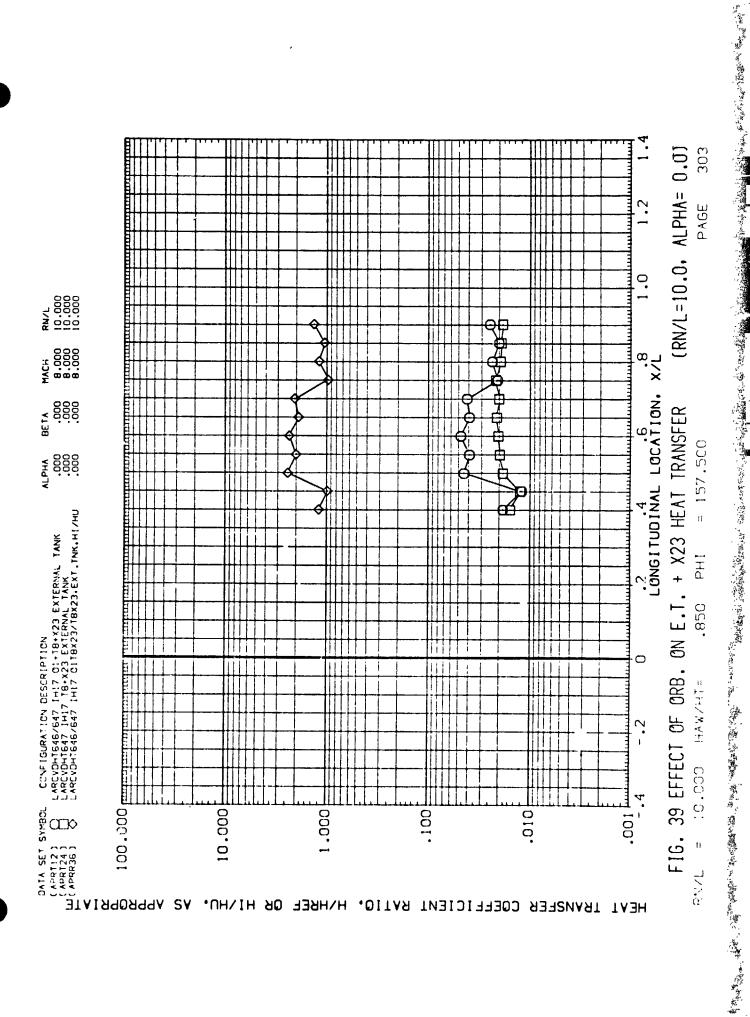
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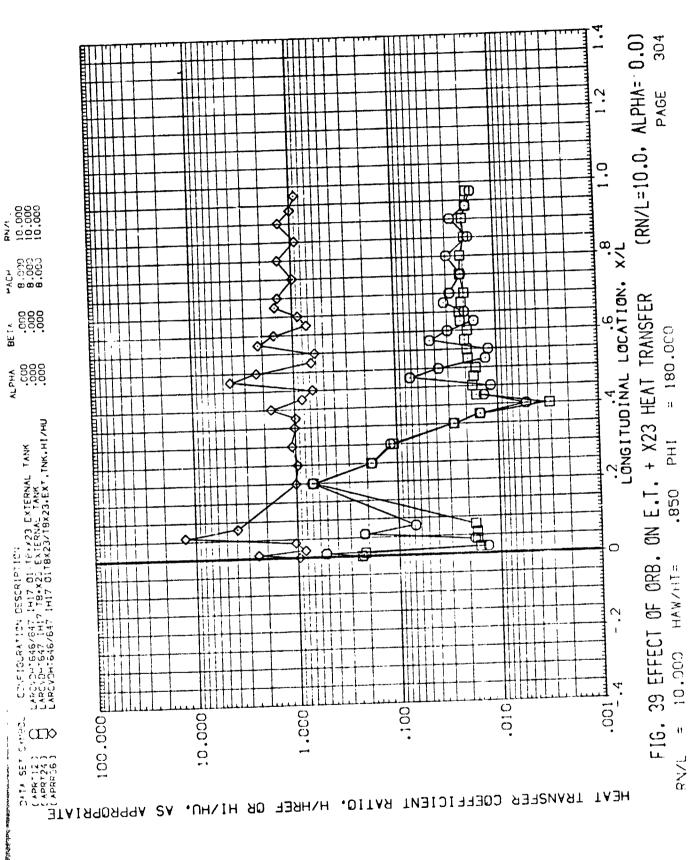
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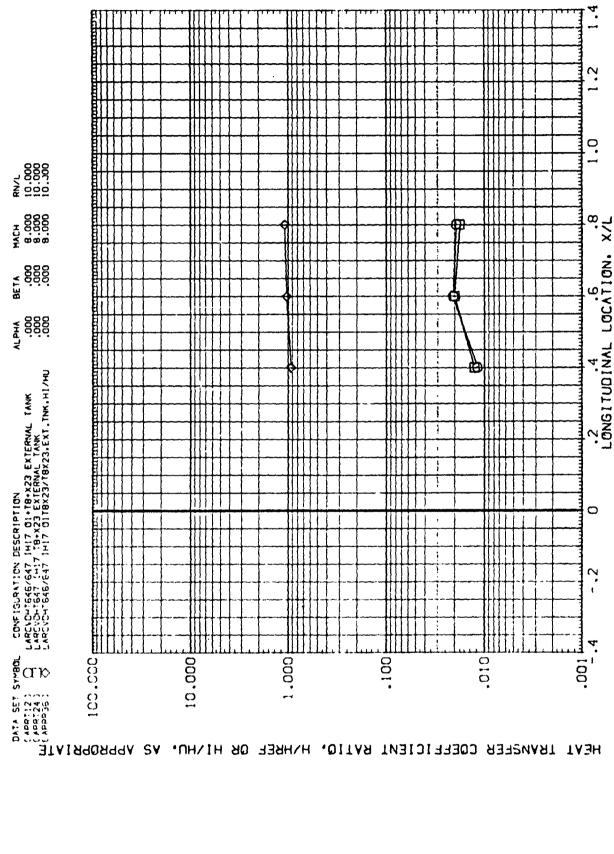


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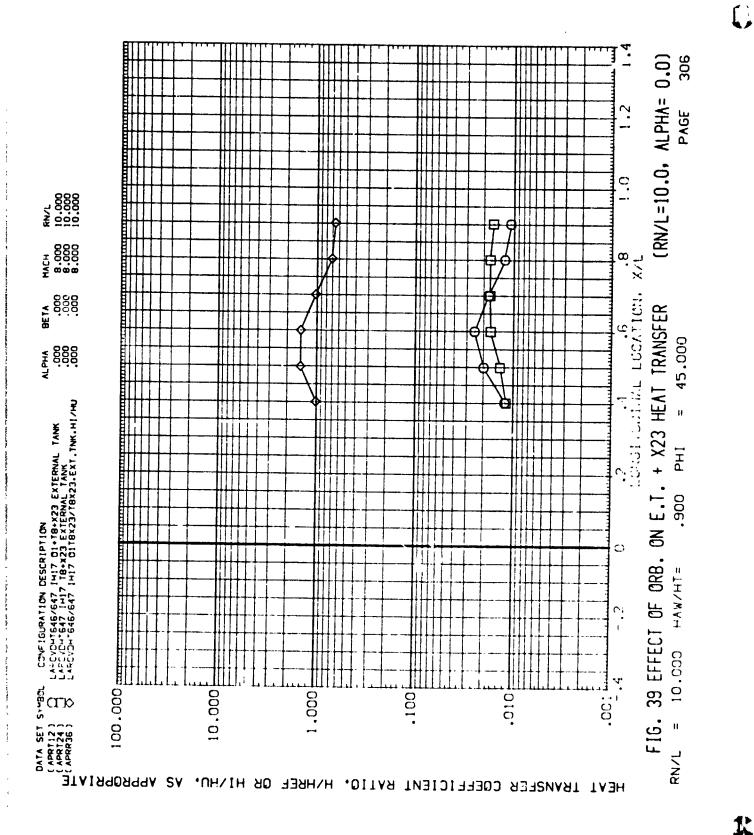
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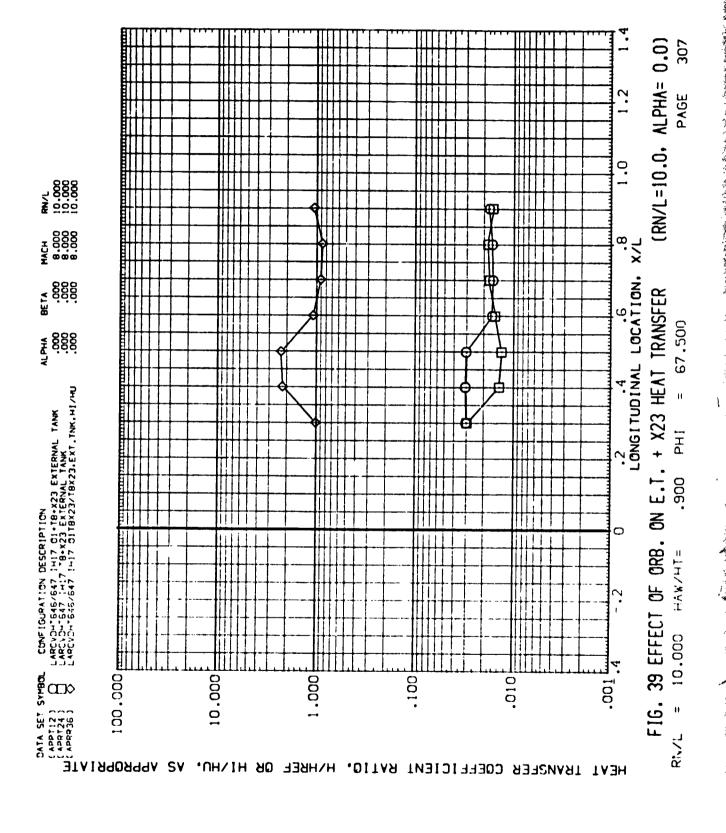
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305 (RN/L=10.0, ALPHA= 0.0) PAGE FIG. 39 EFFECT OF ORB. ON E.T. + X23 HEAT TRANSFER 000. .900 HAW/HT= 10.000

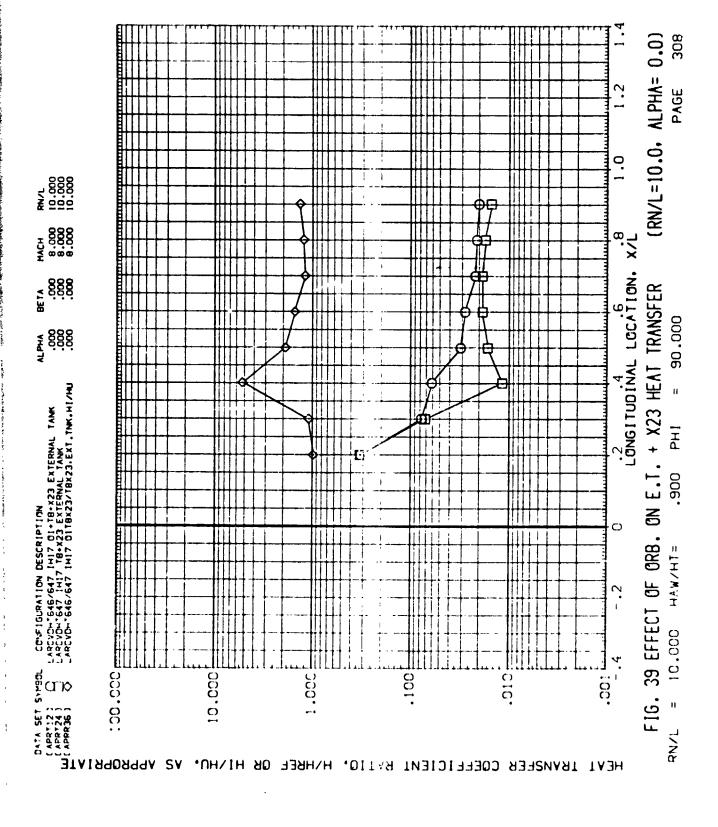
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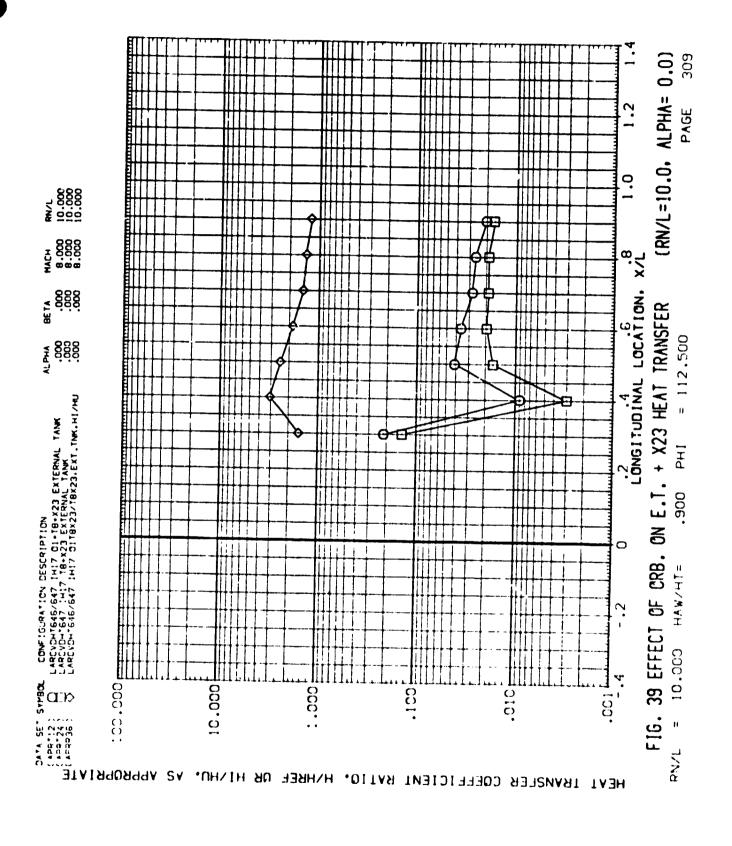




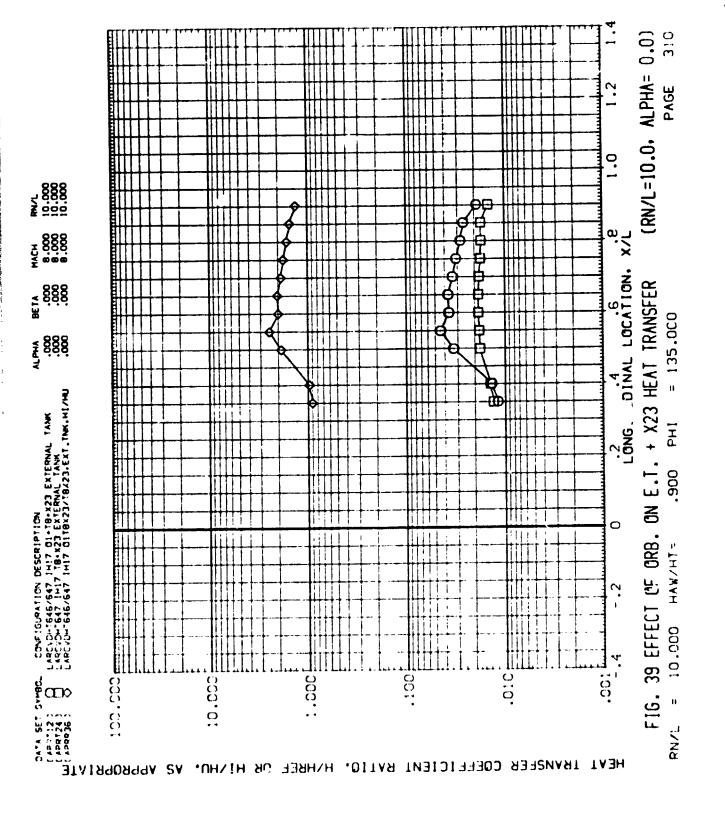
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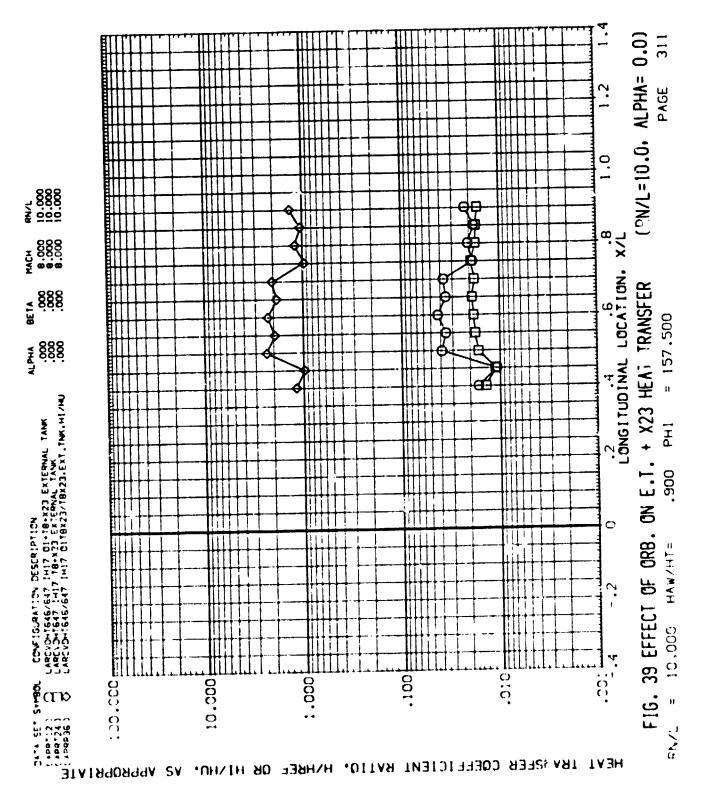


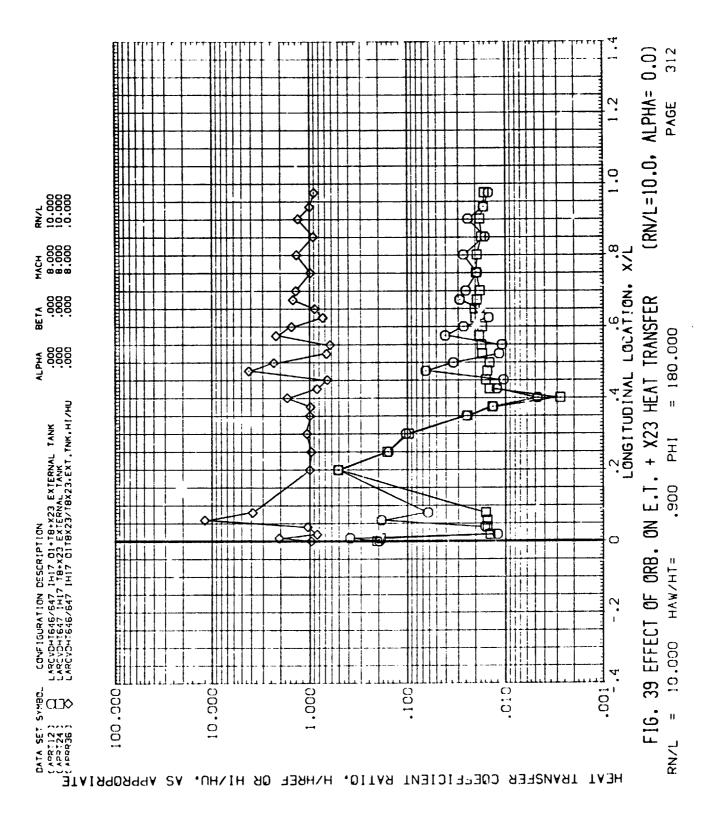
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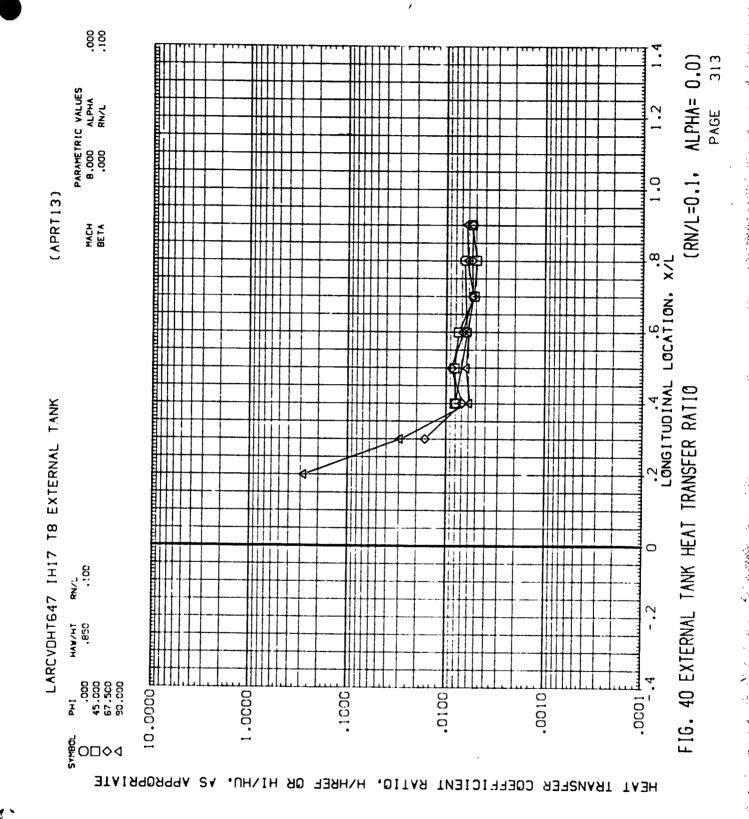


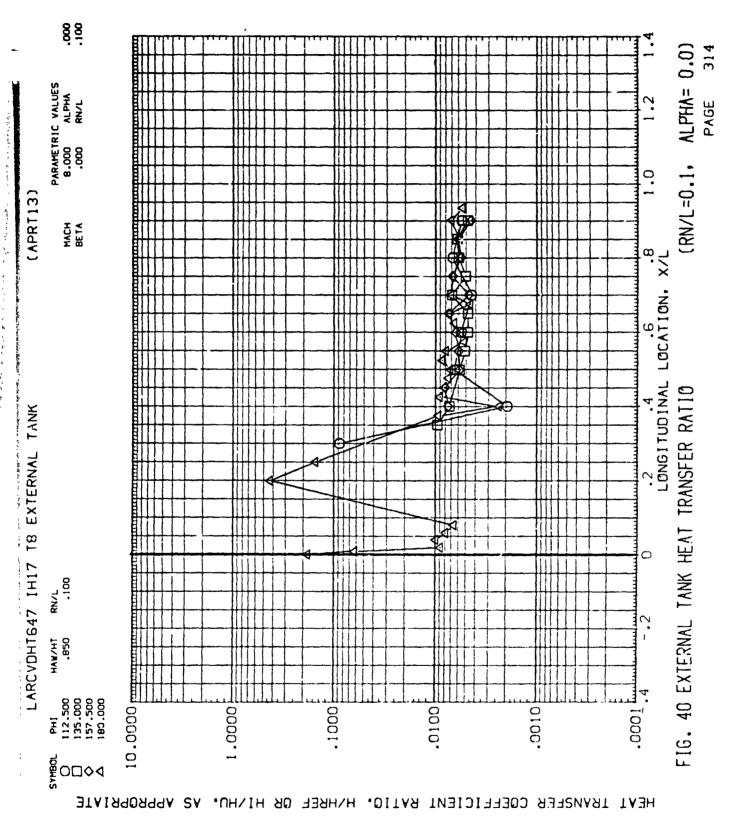




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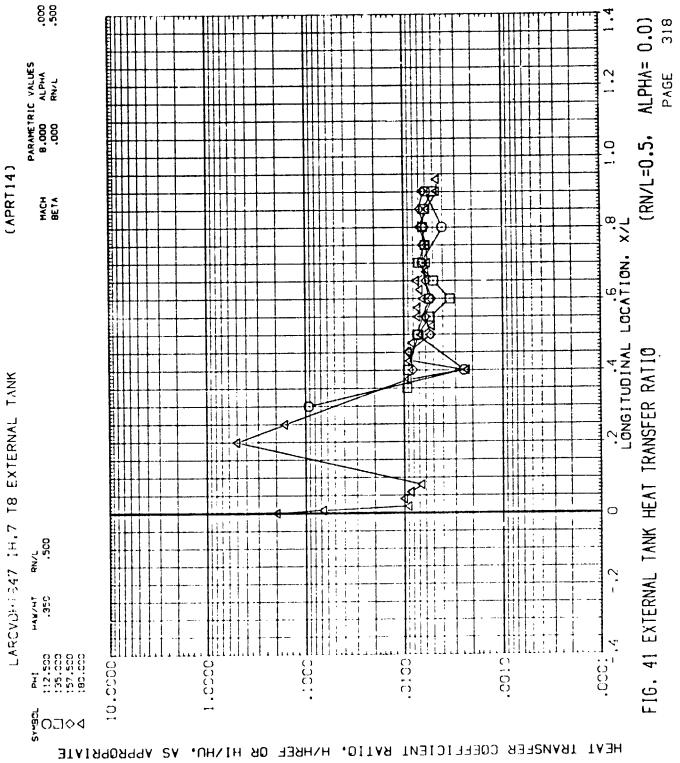
<u>8 -</u> (RN/L=0.1, ALPHA= 0.0) PARAMETRIC VALUES 8.000 ALPHA .000 RN/L PAGE (APRT13) MACH BETA .2 LONGITUDINAL LOCATION. X/L FIG. 40 EXTERNAL TANK HEAT TRANSFER RATIO LARCVDHT647 IH17 T8 EXTERNAL TANK 0 HAW/HT .000! [...4 10.000 PHI .000 45.000 67.500 1.0000 0001. .0010 .0100 § 0□◊4 HYHREF OR HIVHU, AS APPROPRIATE HEAT TRANSFER COEFFICIENT RATIO.

90. ALPHA= 0.0) PAGE 316 PARAMETRIC VALUES 8.000 ALPHA .000 RN/L (RN/L=0.1, 0. (APRT13) MACH BETA FIG. 40 EXTERNAL TANK HEAT TRANSFER RATIO LARCVDH1647 1H17 18 EXTERNAL TANK RN7L P-1 112.500 135.000 157.500 10.0000 .0100 0100. 10001 .0001 1.0000 § 0□◊4 HEAT TRANSFER COEFFICIENT RATIO, HAHREF OR HIVHU. AS APPROPRIATE

888 317 ALPHA= 0.0) PARAMETRIC VALUES 8.000 ALPHA .000 RN/L PAGE (RN/L=0.5, (APRT14) MACH BE 7A .2 LONGITUDINAL LOCATION, X/L FIG. 41 EXTERNAL TANK HEAT TRANSFER RATIO LARCVDH1647 IH17 18 EXTERNAL TANK 0 8N/L .500 HAW/HT 10.0000 .000 45.000 67.500 .0010F 0001. 0010 1.0000 .0001 ž **E**OU⇔4 HEAT TRANSFER COEFFICIENT RATIO, HAHREF OR HIVHU. AS APPROPRIATE

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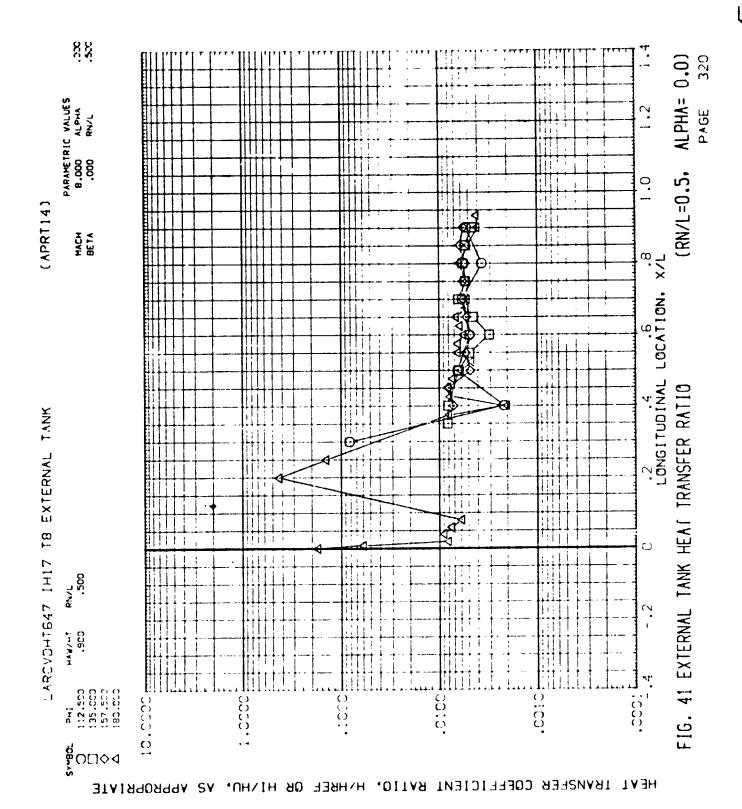


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88. (RN/L=0.5, ALPHA= 0.0) PARAMETRIC VALUES 8.000 ALPHA .000 RN/L 0. (APRT14) MACH BETA .2 .6 .8 LONGITUDINAL LOCATION. X/L FIG. 41 EXTERNAL TANK HEAT TRANSFER RATIO LARCVDHT647 IH17 18 EXTERNAL TANK 11111 0 HA#/HT .900 10.0000 45.203 67.500 90.000 .0010 .00100 ĭ ‱ o□◊∢ HEAT TRANSFER COEFFICIENT RATIO, HVHREF OR HIVHU, AS APPROPRIATE

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99. (RN/L=2.0, ALPHA= 0.0) 321 PARAMETRIC VALUES 8.000 ALPHA .000 RN/L PAGE 0. (APRT15) HACH BETA .2 .6 .8 LONGITUDINAL LOCATION. X/L ШП FIG. 42 EXTERNAL TANK HEAT TRANSFER RATIO LARCVOHT647 IH17 T8 EXTERNAL TANK liili C 10.000 72.7. 2.000 HA#/HT 45.000 67.500 .1000 .0100 .0010 1.0000 :000: **№** 0□◊4 VS VPPROPRIATE HEAT TRANSFER COEFFICIENT RATIO, HYHREF OR HIVHU.

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PAGE 322 PARAMETRIC VALUES 8.000 ALPHA .000 RN/L 0: (APRT15) MACH BETA]]]] !||| .2 . .6 .8 . .8 LONGITUDINAL LOCATION. XZL 11:11 LARCVDH1647 IHI7 18 EXTERNAL TANK ₽₩/L 2.000 HA#/HT 1.2.500 135.000 157.500 10.0000 000: .0100 0100 1000 å O□◊₫ HEAT TRANSFER COFFFICIENT RATIO, HAHREF OR HIVHU, AS APPROPRIATE

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FIG. 42 EXTERNAL TANK HEAT TRANSFER RATIO

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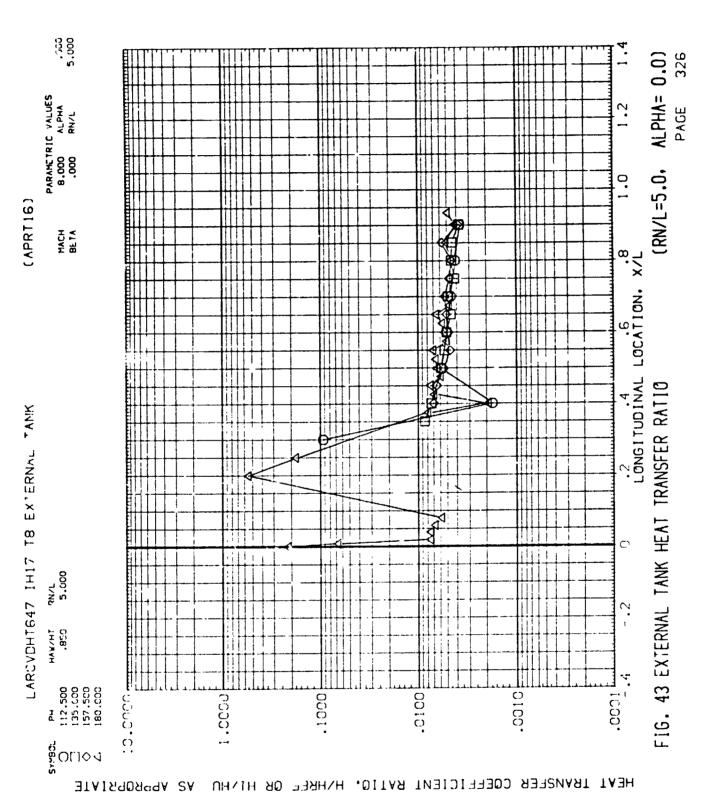
FIG. 42 EXTERNAL TANK HEAT TRANSFER RATIO

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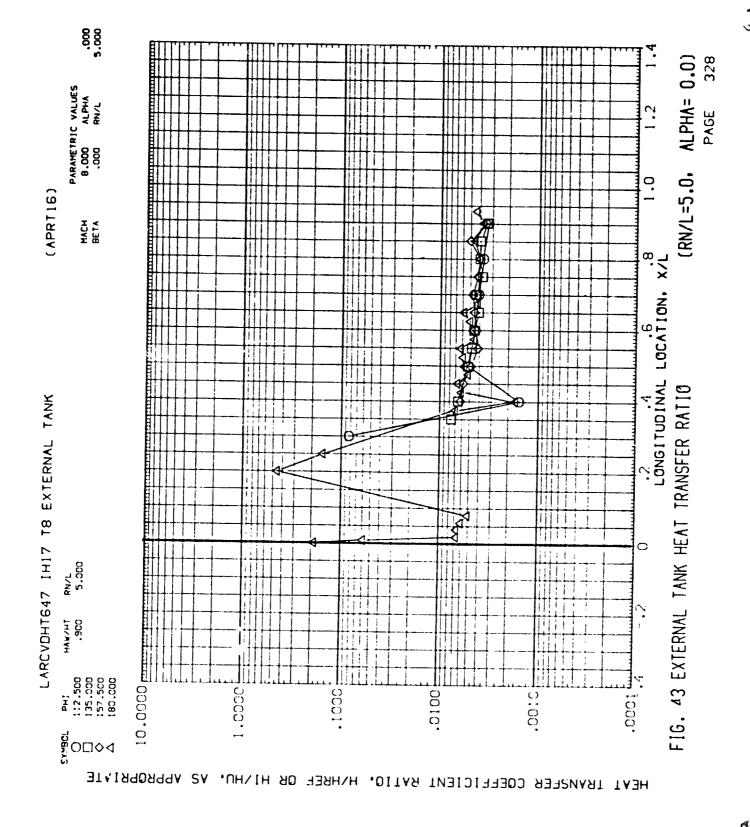
ALPHA= 0.0)
PAGE 324 PARAMETRIC VALUES 8.000 ALPHA .000 RW/L (RN/L=2.0. 0. (APRT15) MACH BE TA .2 .8 .8 .B .B .B .B FIG. 42 EXTERNAL TANK HEAT TRANSFER RATIO LARCVDH1647 1H17 18 EXTERNAL TANK 0 ₽¥/! 2.000 HAW/HT . 900 00000: .0010 0000 :000: å OU¢4 V2 V5580PRIATE HEAT TRANSFER COEFFICIENT RATIO, HYHREF OR HIVHU.

5.00 8.00 9.00 ALPHA= 0.0) PAGE 325 PARAMETRIC VALUES 8.000 ALPHA .000 RN/L (RN/L=5.0. C: 1 (APRT16) HACH BETA L'SNGITUDINAL LOCATION. XZL FIG. 43 EXTERNAL TANK HEAT TRANSFER RATIO LARCVDH: 647 IH17 T8 EXTERNAL TANK O 717L 5.000 *#/### .059. 45.000 67.500 80.000 10100. 0000101 1000 3010. .000: ⁸OU◊4 HEAT TRANSFER COEFFICIENT RATIO, HYHREF OR HIVHU, AS APPROPRIATE



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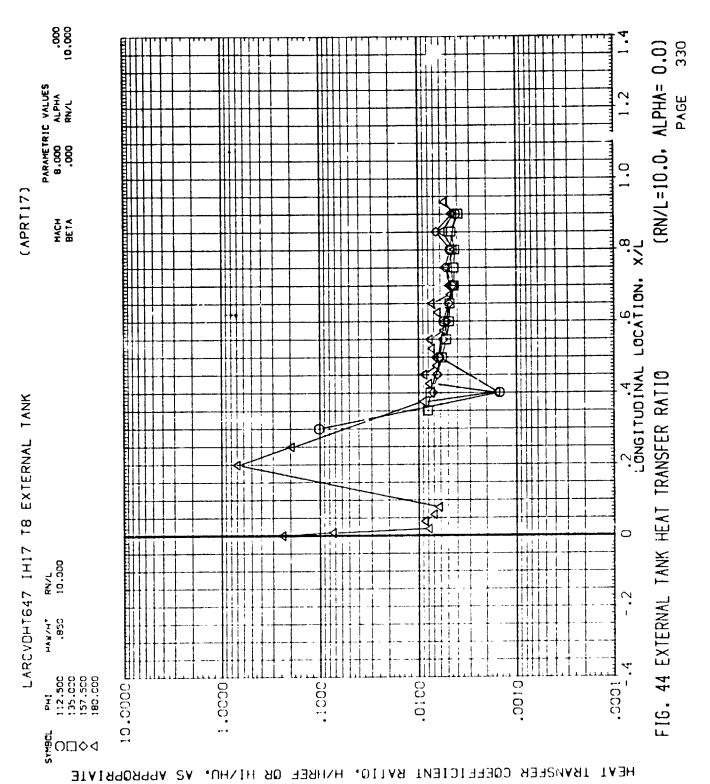
.000 5.000 ALPHA= 0.0) PARAMETRIC VALUES 8.000 ALPHA .000 RN/L PAGE (RN/L=5.0, MACH .2 .6 .8 LONGITUDINAL LOCATION, X/L FIG. 43 EXTERNAL TANK HEAT TRANSFER RATIO LARCVDHT647 IHI7 T8 EXTERNAL TANK PN7L 5.000 14/#/H 10.0000 .1000 .0100 0.00. 1.0000 .0001 § OU♦4 HEAT TRANSFER COEFFICIENT RATIO, HAHREF OR HIVHU. AS APPROPRIATE



00.00 00.00 (Riv/L=10.0, ALPHA= 0.0) PARAMETRIC VALUES 8.000 ALPHA .000 RN/L (APRT17) MACH BETA .2 LONGITUDINAL LOCATION. X/L FIG. 44 EXTERNAL TANK HEAT TRANSFER RATIO 0 PN/L 10.000 HAW/HT .850 10.000e PH1 45.000 67.000 67.000 1.0000日 .0001 .1000 .0100 .0010

LARCVOHIS47 IH17 T8 EXTERNAL TANK

HEAT TRANSFER COEFFICIENT RATIO, HAHREF OR HITHU, AS APPROPRIATE



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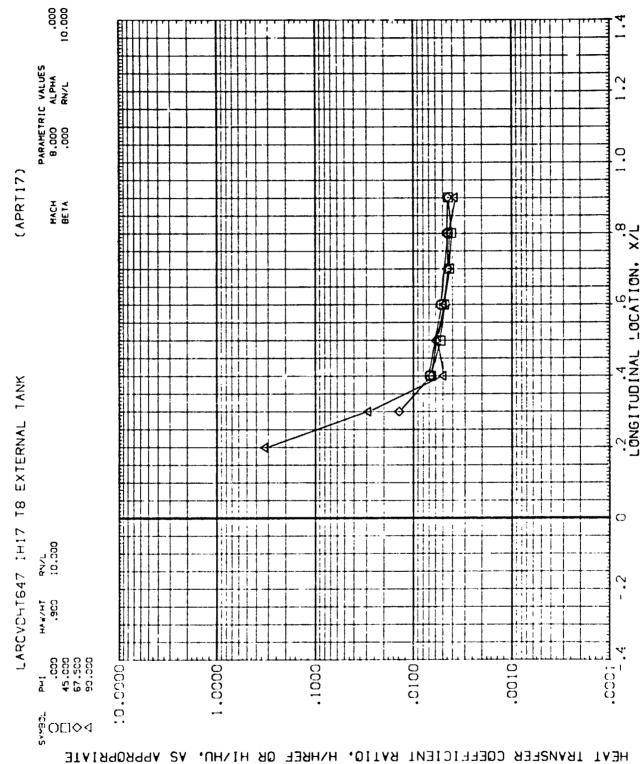
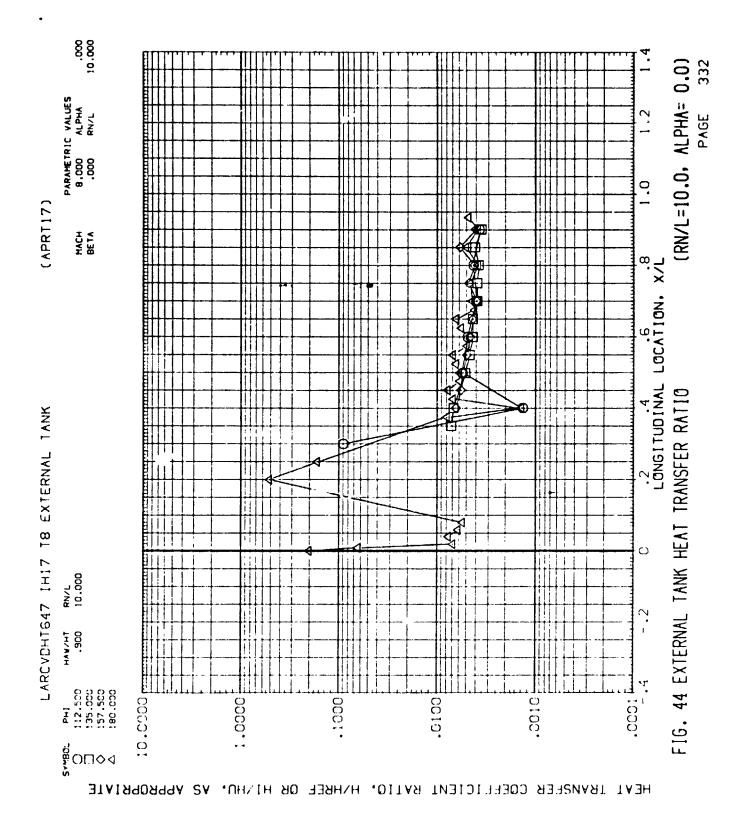
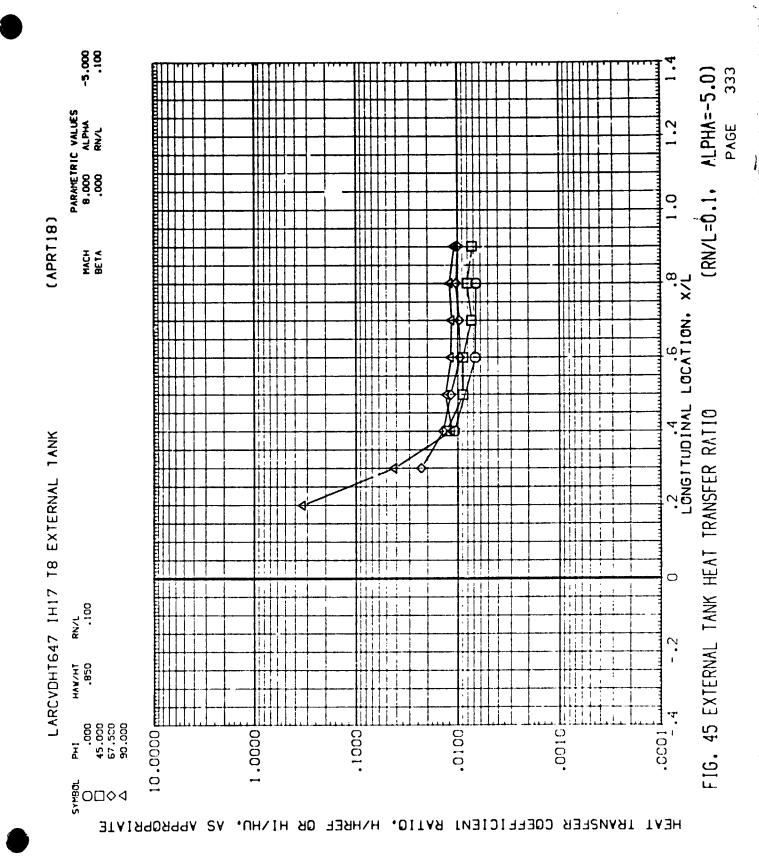


FIG. 44 EXTERNAL TANK HEAT TRANSFER RATIO

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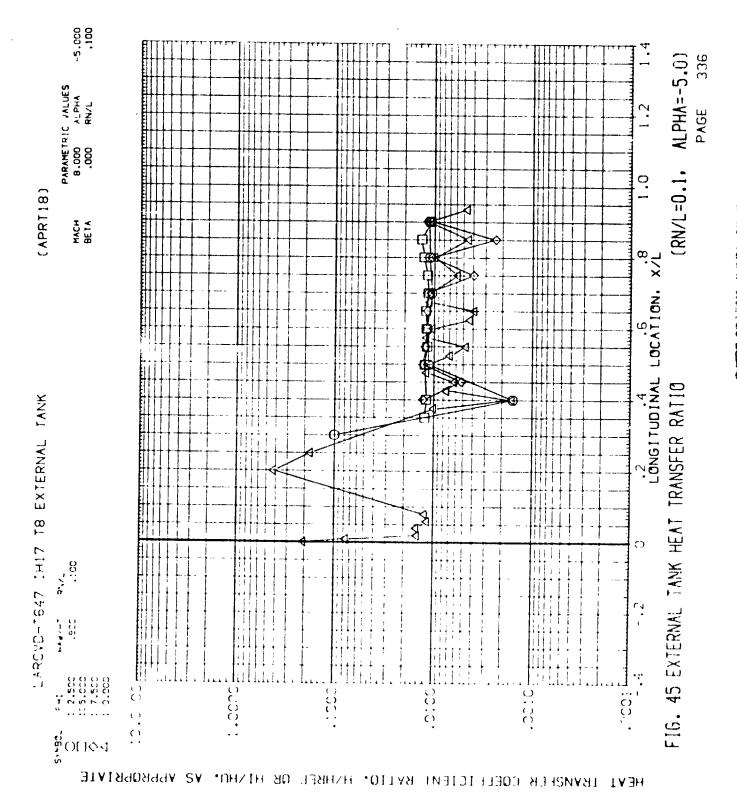
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PAGE 335 HACH BE TA .2 .6 .8 LONGITUDINAL LOCATION. X/L FIG. 45 EXTERNAL TANK HEAT TRANSFER RATIO LARCVDHT647 IH17 T8 EXTERNAL TANK *H/₩/H 0:00: § OEI♦4

HEAT TRANSFER COEFFICIENT RATIO, HAHREF OR HIVHU. AS APPROPRIATE

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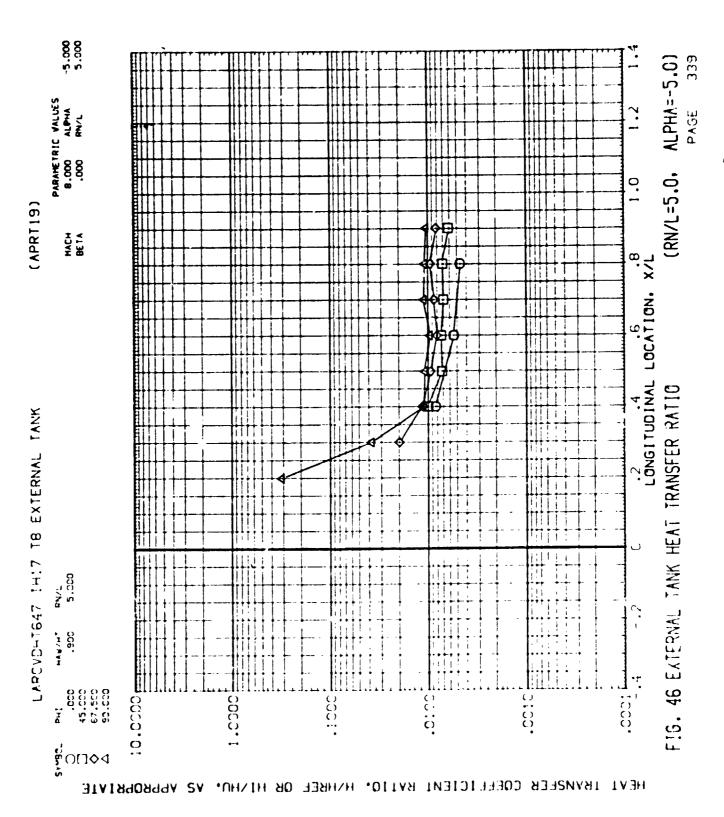
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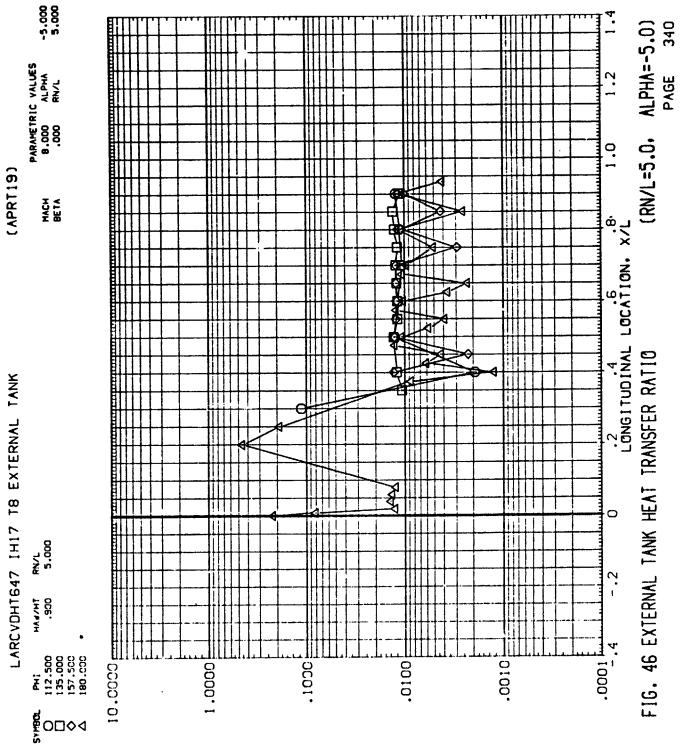
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5.000 ALPHA=-5.0)
PAGE 337 PARAMETRIC VALUES 8.000 ALPHA .000 RN/L (RN/L=5.0, 0. (APRT19) MACH BETA .2 LONGITUDINAL LOCATION. XZL FIG. 46 EXTERNAL TANK HEAT TRANSFER RATIO LARCVOHI647 IHI7 18 EXTERNAL TANK O 8V/L 5.000 HAW/HT .3010 10.0000 0100 10001 1.0000 1000. **№** ОПФ4

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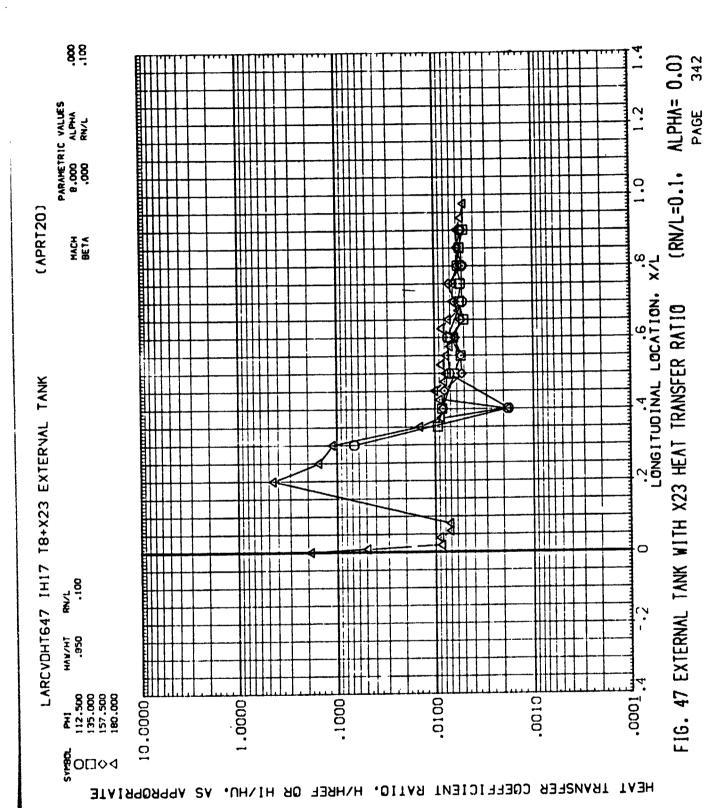
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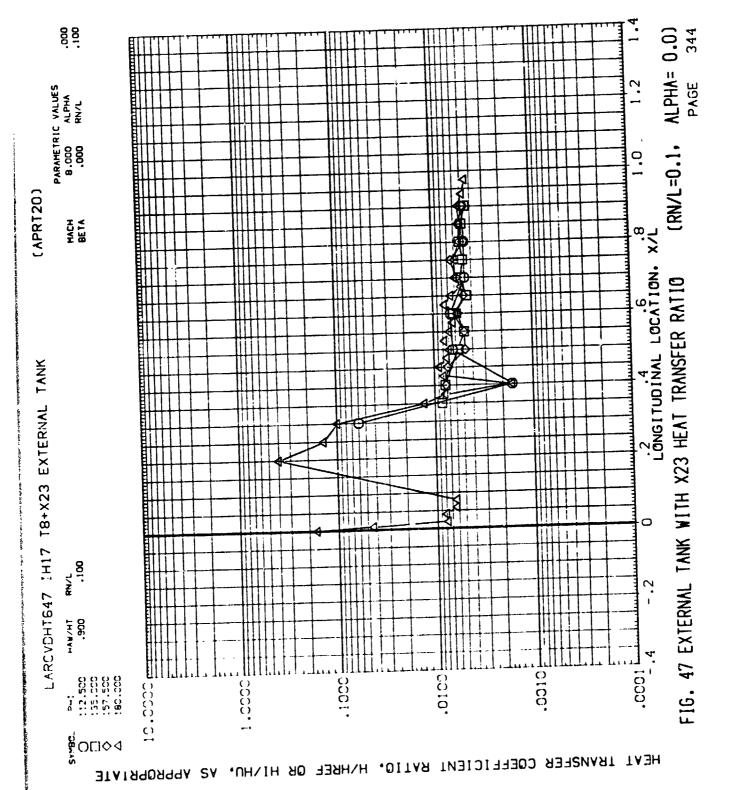
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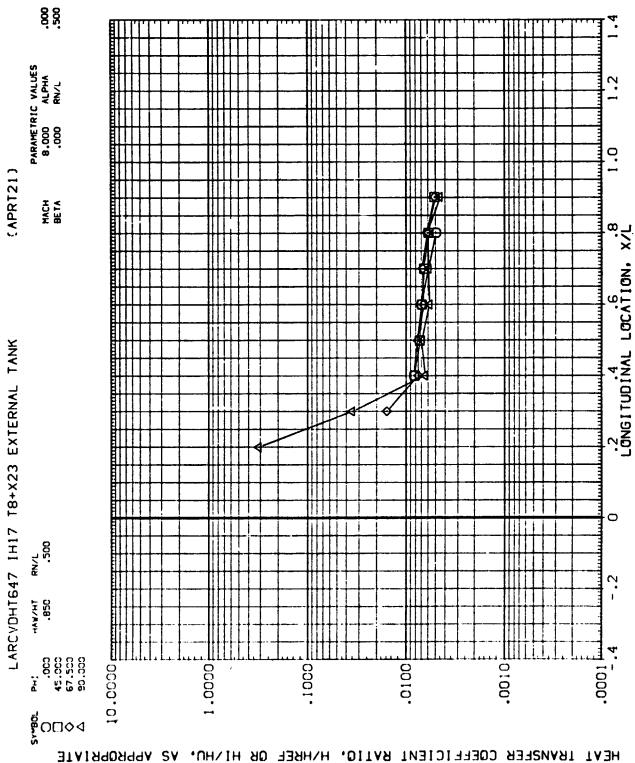
ALPHA= 0.0) PAGE 341 (RN/L=0.1, 0. .2 .6 .8 LONGITUDINAL LOCATION, X/L FIG. 47 EXTERNAL TANK WITH X23 HEAT TRANSFER RATIO LARCVDHT647 IH17 T8+X23 EXTERVAL TANK 0 HAW/HT .0001 45.000 67.500 90.300 10.0000 1000 .0100 .001CE 1.0000 **№** O□◊◊ HEAT TRANSFER COEFFICIENT RATIO, HAHREF OR HIVHU. AS APPROPRIATE



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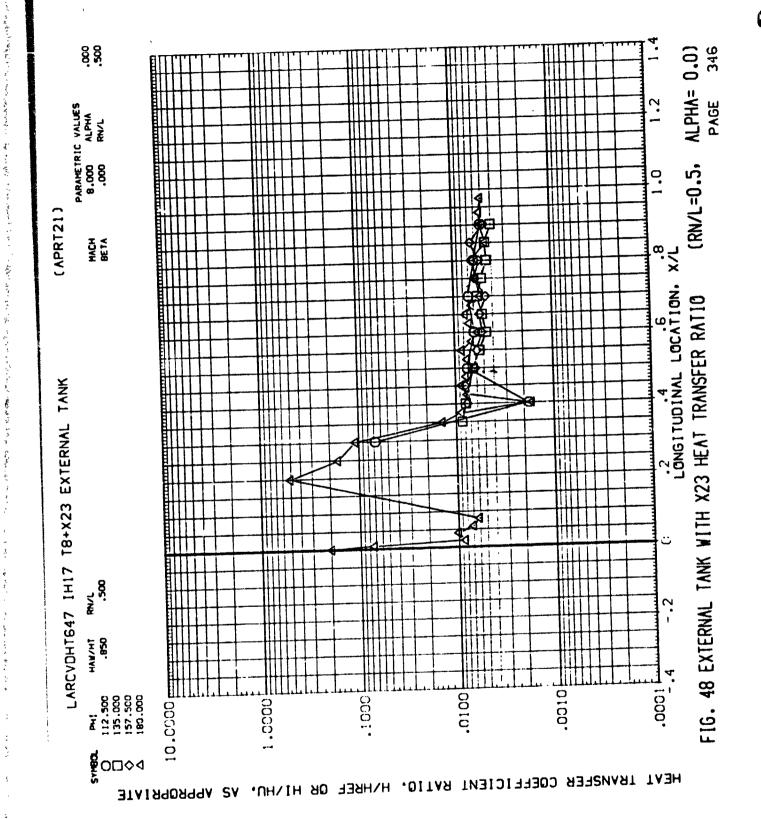
ALPHA= 0.0)
PAGE 343 PARAMETRIC VALUES 8.000 ALPHA .000 RN/L (RN/L=0.1, (APRT20) MACH BE TA .2 .4 .6 .6 .8 .7 LONGITUDINAL LOCATION. X/L FIG. 47 EXTERNAL TANK WITH X23 HEAT TRANSFER RATIO LARCVDHT647 IH17 T8+X23 EXTERNAL TANK 0 HAW/HT 10.000.01 PH1 .000 45.000 67.500 .0100 .0010 .0001 1.0000 § 0□◊4 HEAT TRANSFER COEFFICIENT RATIO, HAHREF OR HIVHU, AS APPROPRIATE

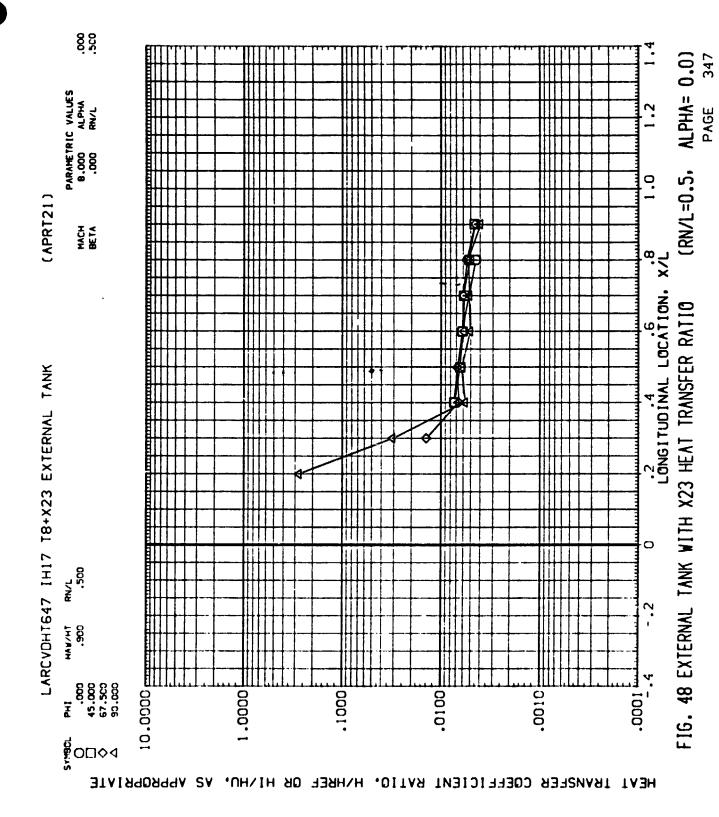


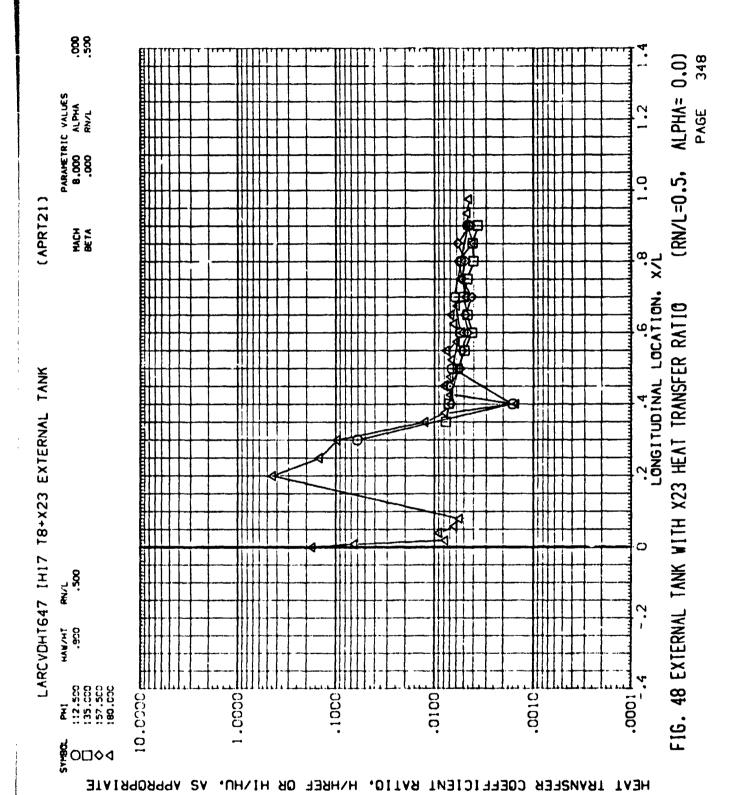


345 ALPHA= 0.0) PAGE (RN/L=0.5. FIG. 48 EXTERNAL TANK WITH X23 HEAT TRANSFER RATIO

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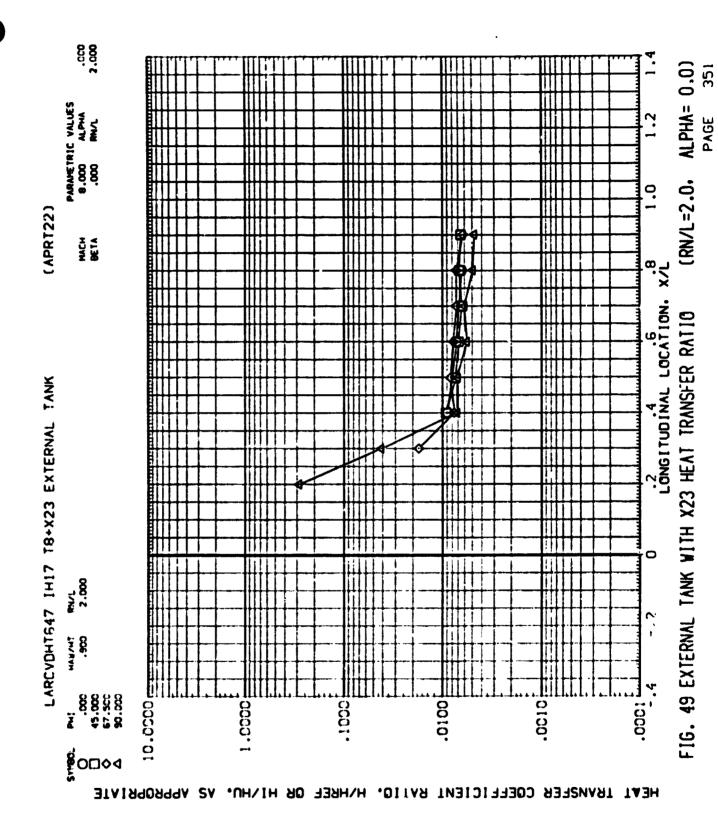
8.8 8.8 PARAMETRIC VALUES 8.000 ALPHA .000 RN/L (APRT22) MACH BETA .2 .4 .6 .8 LONGITUDINAL LOCATION. X/L LARCVDHI647 IH17 T8+X23 EXTERNAL TANK ₹. 2.000 HAW/HT .00.00 1000 10.000 8 55 38 8 55 38 8 55 38 8 55 38 10001. 1.0000 0100 **E**O□◊4 HEAT TRANSFER COEFFICIENT RATIO. HAHREF OR HIVHU. AS APPROPRIATE

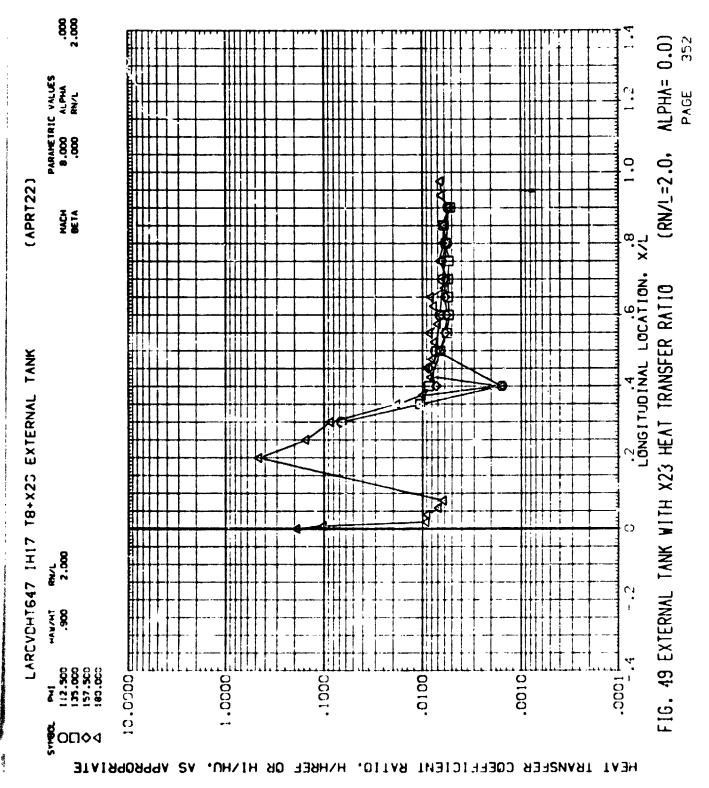
(RN/L=2.0, ALPHA= 0.0)

FIG. 49 EXTERNAL TANK WITH X23 HEAT TRANSFER RATIO

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2.000 350 (0°0 =V1,200 PARAMETRIC VALUES 8.000 ALPHA .000 RN/L 0. (APRT22) MACH BETA LONGITUDINAL LOCATION. X/L FIG. 49 EXTERNAL TANK WITH X23 HEAT TRANSFER RATIO LARCVDHT647 IH17 T8+X23 EXTERNAL TANK 0 2.000 HAW/HT 10.000 .0001 PHI 112.500 135.000 157.400 180.000 1.3000 1000: .0103 .0010 **E**O□◊4 HEAT TRANSFER COEFFICIENT RATIO, HYHREF OR HIVHU. AS APPROPRIATE



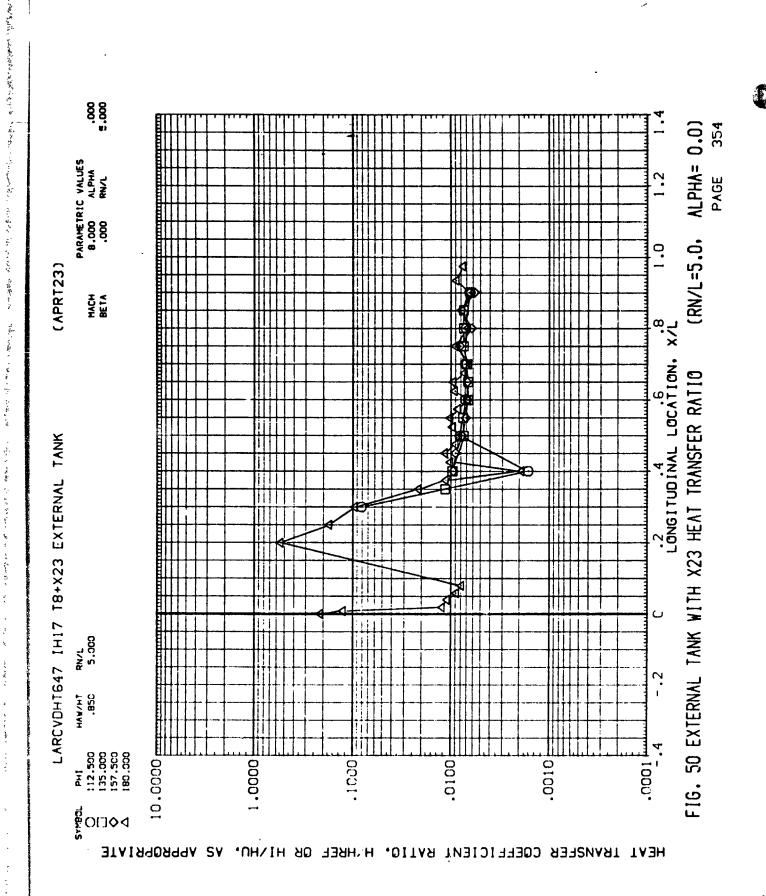


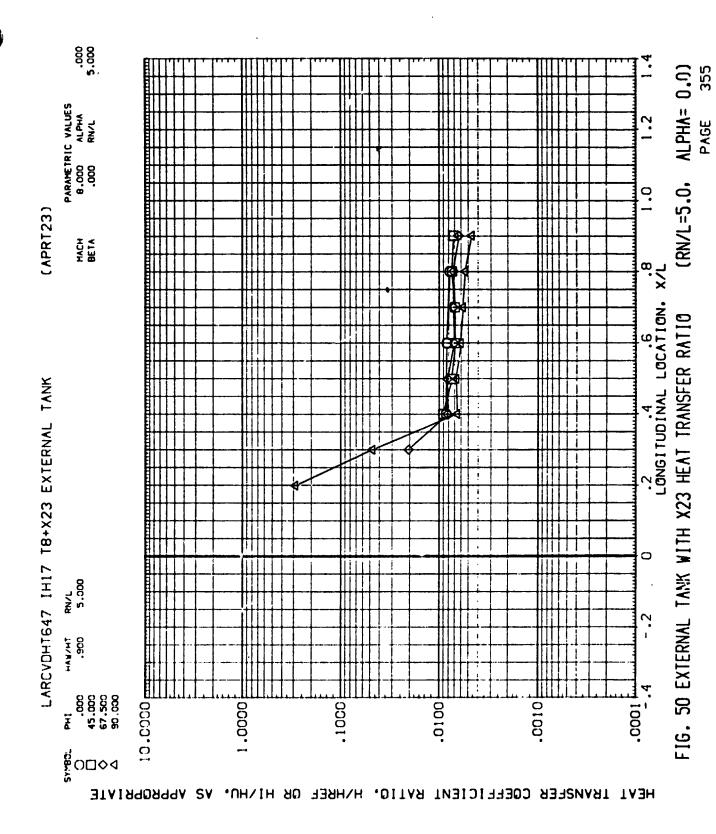
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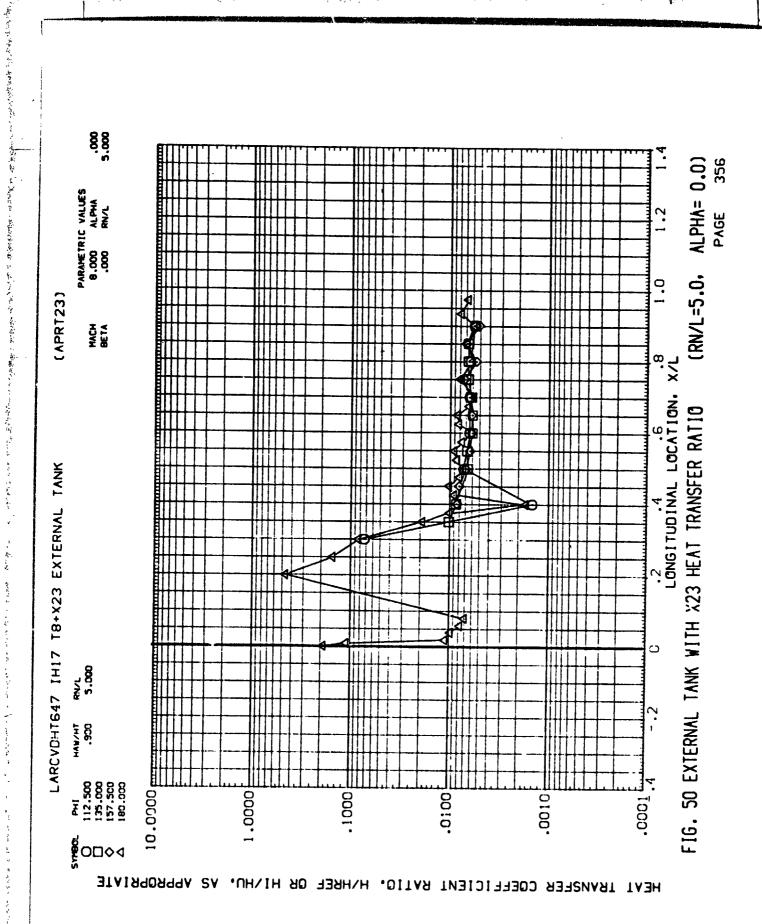
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ALPHA= 0.0) PAGE 353 JARAMETRIC VALUES 8.000 ALPHA .000 RN/L 1.2 0 (APRT23) MACH LONGITUDINAL LOCATION. X/L FIG. 50 EXTERNAL TANK WITH X23 HEAT TRANSFER RATIO LARCVDHT647 IH17 T8+X23 EXTERNAL TANK 0 5.000 HAW/HT 10.0000 .0001 PH1 .000 45.000 67.500 .0010F .0100 1000! 1.0000 § OU♦4 HEAT TRANSFER COEFFICIENT RATIO, HAHREF OR HITHU, AS APPROPRIATE

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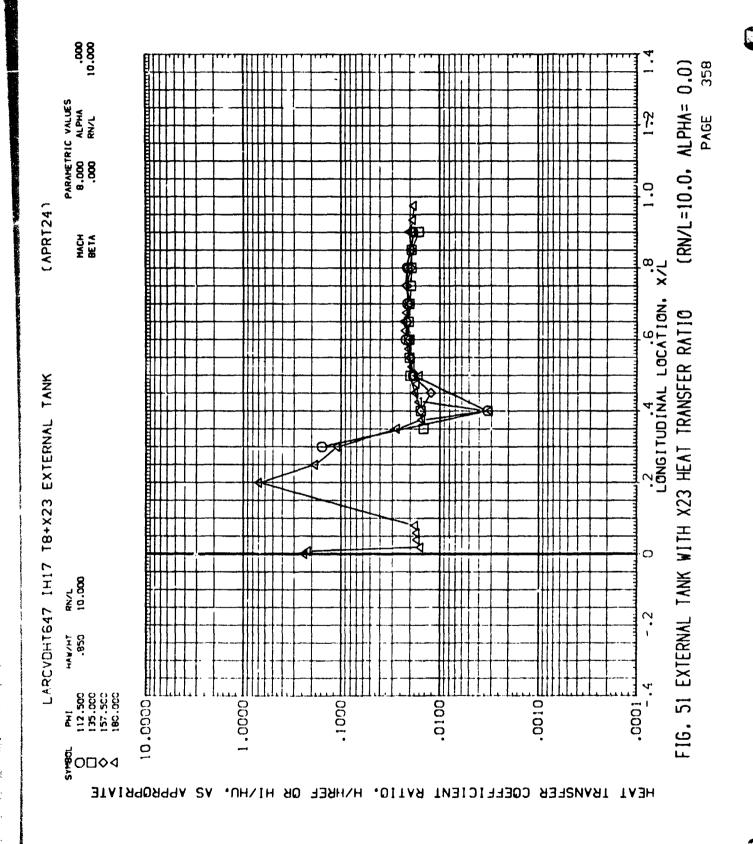


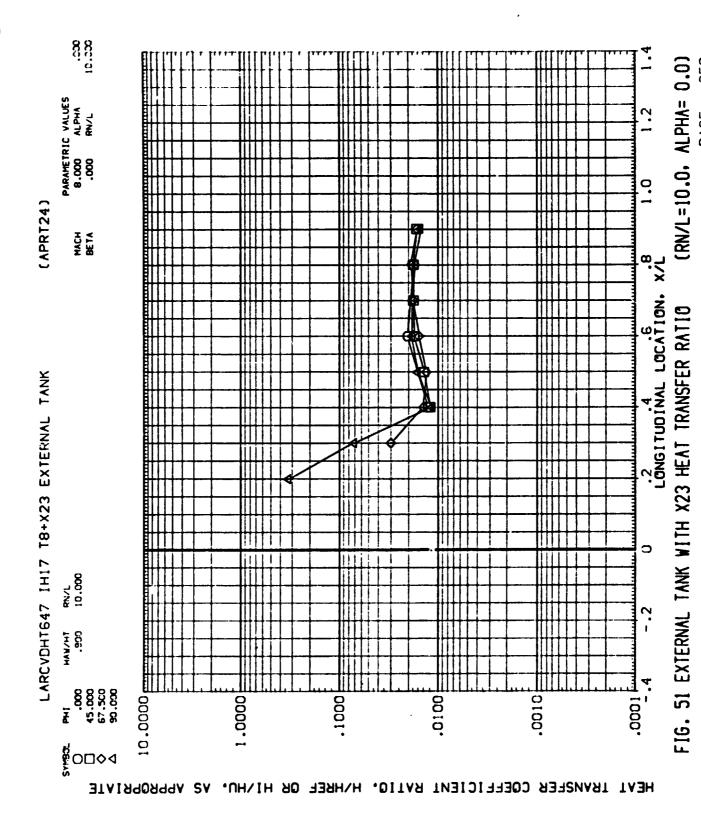


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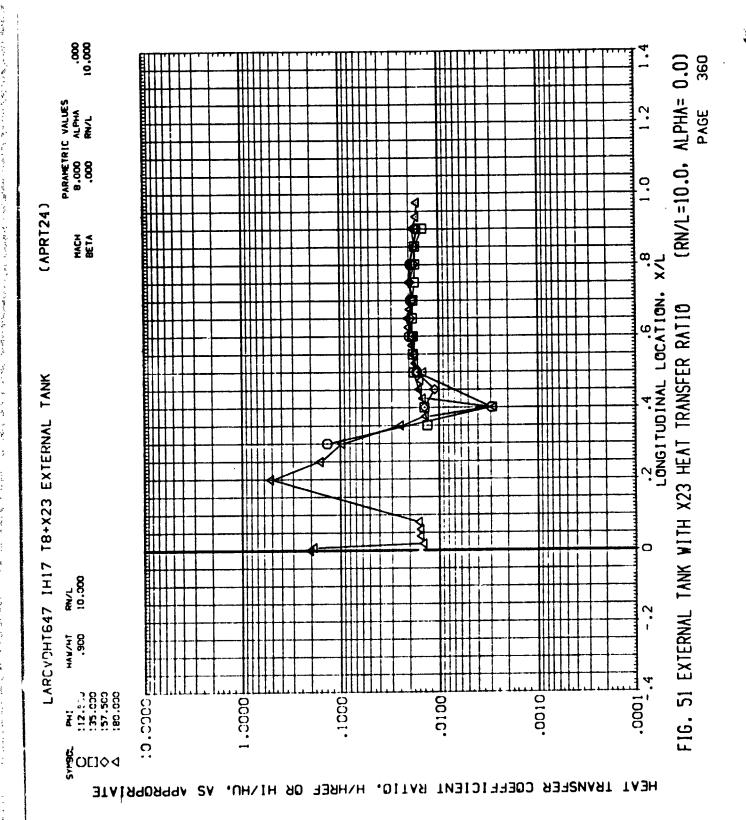
(RN/L=10.0, ALPHA= 0.0)
PAGE 357

FIG. 51 EXTERNAL TANK WITH X23 HEAT TRANSFER RATIO





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٦	LARCVOHT646 1H17 01+T8 ORBITER FUSELAGE	(RPRB02) (16 MAR 76	1 22
PEFEPENCE DATA		PARAMETRIC DATA	
SPET # 2590,0000 SQ.FT. XMRP # 14 6000 [N. YMRP # 256,7000 [N. ZMPP # 504,E # 6750 [N. ZMPP # 6750 [N. ZMP # 6750	.0000 IN. BETA	8.000 ALPHA = .000 RN/L =	.500
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LARCVDH1646 1H17 01+T8 ORBITER FUSELAGE

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	LARCVDHIG46 1417 01+18 OPBITER FUSELAGE	(RPRB03) (15 MAR 75)
PEFERENCE DATA		PARAMETRIC DATA
SPEF * 2693.0000 SQ.FT. XMRP * 14.8030 1. YMRP * 636 T000 1. Z4RP * 504.E * 036 T000 1.	.0000 IN. BETA	- 8.000 ALPHA300 000 RN/L - 2.300
Fig. 7 1) * 2 000 HAW/HTC 1) *	.850 MACH - 7.9115 PO - 497.82 TC	- 1379.4 HO67283-01
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	LARCVDHT646 1H17 O1+T8 ORBITER FUSELAGE		(RPRB05)	~	16 MAR 76
REFERENCE DATA			PARAMETRIC	C DATA	
SPEF # 2590.0000 SO.FT. XMRP # 174.8000 IN. YMRP # 1905 IN. ZMRP # 500.10. ZMRP # 500.10.	.0000 IN. .0000 IN. .0000 IN.	MACH BETA	8.000 000.	ALPHA RN/L	000.01
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	LARCVOHT646 1H17 01+T8+X23 ORBITER FUSELAGE		(RPRB08)	16 MAR	، 9:
PEFERENCE DATA		PAF	PARAMETRIC DATA		
SPEF # 2690.0000 SQ.FT. XMRP # 1924.8C00 IN. YMRP # 936.7C00 IN. Zwpp # 50.059	.0000 IN. .0000 IN. .0000 IN.	MACH BETA	8.000 ALPHA .000 RN/L		. 100
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(RPR311)

247E 16 44R 75

TABULATED SOURCE DAT*, IHI7, LARC VDHT 646-647 LARCVDHT646 1H17 '+T8~X23 ORBITER FUSELAGE

RN/L (1) # 5.000 HAW/HT(2) # SECTION (1)0PB:TER FUSELAGE

DEPENDENT VARIABLE HIHREF

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CATE 16 MAR 76	TABULATED SOURCE DATA, 1H17, LAF	LARC VDHT 646-647			_	PAGE 23
	LARCVDHT646 1H17 O1+T8+X23 ORBITER FUSELAGE	TER FUSELAGE		(RPRB12)	u	16 MAR 76)
PEFEPENCE DATA			•	PARAMETRIC D	DATA	
SPEF = 2590.0000 50.FT. XMRP # 124.8000 1N. YMRP # 235.7300 1N. ZMRP # 350.7300 1N. ZMRP # 350.25 = 350.7300 1N. ZMRP # 350.25 = 350.7300 1N. ZMRP # 350.25 = 350.7300 1N. ZMRP # 350.25 = 350.7300 1N. ZMRP # 350.25 = 350			MACH BETA	8.000 .000 R	ALPHA RN/L	.000
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SECTION (1:0PBITER FUSELAGE	DEPENDENT VARIABLE H/HREF					
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TABULATED SOURCE DATA, 1417, LARC VDHT 646-647

LARCVDHT646 1H17 01+T8+X23 ORBITER FUSELAGE

006. BV. (1) # 10.000 HAW/HT(2)#

SECTION (1) OPBITER FUSELAGE

DEPENDENT VARIABLE H/HREF

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247E : 6 MAR 76

PAGE 25	(RPRB25) (16 MAR 76)	PARAMETRIC DATA	8.000 ALPHA = .000 .000 RN/L = 100	1251.6 H0 = .19145-01				1251.6 HO = .19145-01			
	5	PARAM	HACH = 8.	T0 = 12				10 = 12			
LARC VDHT 646-647	FUSELAGE			PO = 32.700				PO = 32.700			
ABULATED SOURCE DATA, 1H17, LAF	LARCVDH76+6 1H17 01+X23 ORBITER FUSELAGE		.0000 IN. .0000 IN.	.850 MACH = 7.4713	DEPENDENT VARIABLE HIHREF			.900 MACH = 7.4713	DEPENDENT VARIABLE HIMREF		
DATE 16 MAR 7F' TAB		REFERENCE DATA			SECTION (1) ORBITER FUSELAGE	Y(BP)	350	RN/L (1) = .150 HAW/HT(2) =	SECTION (1) OPBITER FUSELAGE	V(BP) . 0003 70.0000	7/x 0000 0000 0000 0000 0000 0000 0000

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TABULATED SOURCE DATA, 1H17, LARC VOHT 646-647 LARCVDHI646 1417 01+X23 ORBITER FUSELAGE

DEPENDENT VARIABLE H/HREF

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SECTION / 1)OPBITER FUSELAGE

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(RPRB26)

*ABULATED SOURCE DATA, 1H:/, LARC VDHT 646-647

LARCVOHT646 1H17 01+X23 ORBITER FUSELAGE

DEPENDENT VARIABLE H/HREF

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247E : 5 449 75 TAB	TABULATED SOURCE DATA, 1H17, LARC VOHT 646-647	PAGE 29
	LARCVDHT646 1H17 01+X23 ORBITER FUSELAGE	(RPRB27) (16 MAR 76)
REFERENCE DATA		PARAMETRIC DATA
SPET # 2690.0000 50.FT, XMAP # 2892.0000 1N, YMAP # 806.1000 1N, ZMAP # 504.5 # 504.5 # 2059	.0000 IN. BETA	8.000 ALPHA ■ .030 .000 RN/L = 2.030
# (1) # 2,000 HAW/HT(1) #	.850 MACH = 7.9095 PO = 490.20 TO	= 1368.1 HO = 7.66564-01
SECTION (1)OPBITER FUSELAGE	DEPENDENT VARIABLE H/HREF	
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### 100 10		
PN/L ' 1) = 2.000 HAW/HT(2) =	.900 MACH * 7.9095 PO * 490.20 TO	= 1368.1 HO = .66564-01
SECTION / 1:04317ER FUSELAGE	DEPENDENT VARIABLE HYHREF	
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TABULATED SOURCE DATA, 1417, LARC VDHT 646-647

247E 15 MAR 76

LARCVDHT646 1H17 01+X23 ORBITER FUSELAGE

.900 PN: (1) * 2.000 HAW/HT; 2) = SECTION (1) DRBITER FUSELAGE

DEPENDENT VARIABLE HIHREF

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PAGE 31	(RPRB28) (16 MAR 76)	PARAMETRIC DATA	* 8.000 ALPHA * .000 * .000 RN/L * 5.000	■ 1388.6 HO ■ .80567-01				■ 1388.6 HO ■ .80567-01			
647			MACH BETA	719.47				01 74.917			
ARC VDHT 646-	R FUSELAGE			P0 * 71				P0 - 719			
TABULATED SOURCE DATA, 1417, LARC VDHT 646-647	LARCVOHT646 1H17 01+X23 OP81TER FUSELAGE			.850 МАСН ≈ 7.9584	DEPENDENT VARIABLE H/HPEF			.900 HACH = 7.9584	DEPENDENT VARIABLE HYMREF		
DATE :6 #48 T6		PEFERENCE DATA	SAEF # 2690 0000 SQ FF. XMRP # PEF # 474 8000 IN. YMRP # BPEF # 936 TOOD IN. ZMRP # SCALE # 036 TOOD IN.	H (1) LETTY OUT IN H . 1 U TYER	SECTION () CPB, TEP FUSELAGE	9 (BP)	######################################	RN/L (1) = 5.000 HAW/HT(2) =	SECTION : 1 0-917EP FUSELAGE	YrBP - C000 - C000	

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*ABULATED SOURCE DATA, 1H17, LARC VOMT 646-647

LARCVOHT645 1H17 01+X23 OPBITER FUSELAGE

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DEPENDENT VARIABLE HIHREF

(RPRB28)

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TABILATED SOURCE DATA, IHIT, LARC VOHT 646-647

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LARCVDHIS46 1H17 01+X23 ORBITER FUSELAGE

DEPENDENT VARIABLE HINREF .300 HAM/FT(2) H SECTION / 1:088:TER FUSELAGE Part 1 1 4 10,000

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PAGE

DATE 16 MAP 76	HT 646-61.7	
	LAK. VUHIB46 1H17 01 ORBITER FUSELAGE (RPRB30) (15 MAR	MAR 76 ;
REFERENCE DATA	PARAMETRIC DATA	
SPEF = 2590.0000 50.57, XMRP = 174.8000 [N. XMRP = 8756.7000 [N. XMRP = 8256.7000 [N. XMRP =	.0000 IN. BETA = 8.000 ALPHA = .0000 IN. BETA = .000 RN/L = .0000 IN.	-5.000 . 100
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SECTION (1) OPBITER FUSELAGE	DEPENDENT VARIABLE H/HRSF	
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RN/L (1) = .100 HAW/HT(2) =	.900 MACH = 7.4647 PO = 31.700 TO = 1221.4 HO =	10-64881. =
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TABULATED SOURCE DATA, IHIT, LARC VDHT 646-647
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PAGE

(RPRB30)

LARCVDHTS46 1H17 01 ORBITER FUSELAGE

24TE 16 MAR 76

.900 .100 HAW/HT(2) # SECTION (1) ORBITER FUSELAGE RN/L (1) #

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DEPENDENT VARIABLE HIHREF

CATE :6 MAP 76	TARCLATED SOURCE DATA, 1417. LARC VDHT 646-647	PAGE 37
	LAPCYDHIS46 1H17 01 ORBITER FUSELAGE	(RPRB31) (16 MAR 75)
PEFERENCE DATA		PARAMETRIC DATA
Segn = 2590,0000 SO,F7. X4RP = 474,8000 IN. Y4RP = 625,700 IN. ZABP =	.0000 .0000	MACH = 8.000 ALPHA = -5.000 BETA = .000 RN/L = 5.000
B1 (1) = 5.000 HAW/HT(1) =	.850 MACH = 7.9611 PO = 735.73	10-57308. = 000 4.1851 = 01
SECTION (1:0PBITER FUSELAGE	DEFENDENT VARIABLE HITHEF	
CBP . 0000 70.0000		
PN/L (;) = 5.003 HAM/HT(2) =	.900 MACH . 7.9611 PO = 735.33	TO = 1391. + HO = . 80572-01
SECTION (1) CPBITEP FUSELAGE	REF	
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TABULATED SOURCE DATA, 1H17, LARC VDHT 645-647

LARCVDHT646 1417 01 ORBITER FUSELAGE

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PAGE 39	(RPRB32) (15 MAR 76)	PARAMETRIC DATA	# 8.000 ALPHA = .000 # .000 RN/L = .100	= 1211.4 HO = 19041-01							= 1211.4 HO = .19041-01			
			MACH BETA	0							2			
LARC VOHT 646-647				= 32,700							32.700			
LARC VO	USELAGE			8							8			
ABULATED SOURCE DATA, 1417. I	LARCVDHT646 1417 01 ORBITER FUSELAGE			.850 MACH = 7.4713	DEPENDENT VARIZBLE HZHREF				,		.930 MACH = 7.4713	DEPENDENT VARIABLE HIHREF		
AT 15 15 15 15 15 15 15 15 15 15 15 15 15		ATAC BORGERGE	# # # # # # # # # # # # # # # # # # #	100 HAW/HT(1) H	SECTION : CPB: TEP FUSELAGE	00	#1 2101213	7		• 7 III • 7 C C C C C C C C C C C C C C C C C C	RN/_ 100 HAW/HT(2) =	SECTION OF TER FUSELAGE	0000 OL 2000	######################################

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PAGE 40

(RPR332)

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PAGE	16 MAR 76			M.								
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LARC VDHT 646-647	LARCVDHT646 1H17 01 ORBITER FUSELAGE			90					0			
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*ABULATED SOURCE DATA, 1417, LARC VOHT 646-647
                                        LARCVDHIS46 1H17 01 ORBITER FUSELAGE
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DEPENDENT VARIABLE H/HREF # (8) FT (4) 000 # (1) 7 m SECTION : OPBITER FUSELAGE

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(RPRB33)

.64181-01 .64181-01 . 000 2 . 000 (RPRB34) (15 MAR 76) m t PAGE 오 ALPHA RN/L 임 PARAMETRIC DATA = 1348.7 = 1348.7 9.000 5 5 MACH = 491.13 × 491.13 TABULATED SOURCE DATA, IH17, LARC VOHT 646-647 LAPCVDHT546 1H17 01 ORBITER FUSELAGE 5 8 CEPENDENT VARIABLE HITHREF CEPENDENT VARIABLE H/HREF .900 MACH = 7.9098 **7.9098** BS0 MACH PN/L ' 1) = 2.000 HAW/HT(2) = a. 2.000 HAW/HT(1) # SECTION (1) OPBITER FUSELAGE SECTION (1) OPBITER FUSELAGE REFERENCE DATA 2690.0000 S0.FT. 474.8000 N. 936.7300 N. .0032 .0090 .0090 0036 0023 0110 0115 1258 0000 01 0000. 0000.07 2000. 37 E 18 MAP 76 # # # # to to to ' to to to ' to to to O (0 - 1 (1) (0) . m > 0 1'1 >

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(RPRB34)

.80824-01 .83824-01 5.000 (RPRB35) (16 MA 75) PA3E ALPHA RN/L £ ç PARAMETRIC DATA ± 1377.1 8.000 .000 = 1377.1 þ 6 MACH BETA * 741.5E **341.56** TABULATED SOURCE DATA, 1H17, LARC VDHT 646-647 LARCVOHT645 THIT OF ORBITER FUSELAGE 8 g Q DEPENDENT VARIABLE HITHEF DEPENDENT VARIABLE HIHRER * 7.9622 .850 MACH = 7.9622 .900 MACH HAM/HT (2) # # CT OFTENDED OF B TO DO OF ۵ ۵ ۵ ۵ ۵ ۲ ۲ 1 CPB1 EP FUSELAGE SECT OF CHARTER FUSELAGE PEFERENCE DATA 0000 01 0000 0000 70.0000 υ Ω Ω 31 2 3 47 3 3 3 4C dispondence Ferrica con and months of the second se 61.03 H H H H H

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TABLLATED SQURGE DATA, 1817, LARG VOHT 646-647

LAPCVDHT646 1417 01 ORBITER FUSELAGE

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PAGE 49	(RPRC01) (16 MAR 75)	PARAMETRIC DATA	H = 8.000 ALPHA = .000	10 = 1236.7 H0 = .194~3-31			TO = 1236.7 HO = .19479-01			
ABULATED SOURCE DATA, 1H17, LARC VOHT 646-647	LARCVOHT646 1H17 01+TB ORBITER CANOPY		.0000 IN. MACH .0000 IN. BETA	.850 MACH = 7.3731 PO = 23.605 DEPENDENT VARIABLE H/HREF			.900 MACH = 7.3731 PO = 23.805	DEPENDENT VARIABLE H/HREF		
TABULA		4.40 BOXBegrade	# # # # # # # # # # # # # # # # # # #	HAWAH CO = (1) = NOITE	0515. 0801. 0871. 5 ⁻⁴⁸ . Y	1,000 1,000 3,000 3,000 4,000 5,000 6,000	RN/L ' 1) ≠ 100 HAW/HT(2) #	SECTION : 1,099, TER WINDSHIELD	0515. 0361. 0871. 0742 Y	1,00 0.020; 2,000 0.398 3,000 0.398 4,000 0.399 5,000 0.3098

75 TABULATED SOURCE DATA, 1417, LARC VDHT 646-647	LARCVDHIG4S 1H17 01+TB ORBITER CANOPY (RPRCO2) (16 MAR 75)	PEFEPENCE DATA	10.0000 SQ.FT	536 HANNH"' :) = .859 MACH = 7.7041 PC = 117.18 TO = 1270.3 HO = .32105-01	CPBITER WINDSHIELD DEPENDENT VARIABLE HZHREF	. 1780 . 1780 . 2130	0:50. 8:50. 5-00. 5-00.	500.	::OPBITER WINDSHIELD DEPENDENT VARIABLE H/HREF		0740 . 1780 . 1585 . 281 . 0740 .	. 1780	. 1780	780		780	
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CATE 16 MAP	75	TABULATE	TABULATED SOURCE DATA, 1417, LARC VDHT 646-647	ARC VDHT 646-647			_	PAGE 51	
		LAPCVE	LAPCVDH*546 1H17 01+T8 ORBITER CANOPY	CANOPY		(RPRC03)		(16 MAR 76	_
	PEFEPENCE DATA					PARAMETRIC DATA	DATA		
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PAGE 52	(15 MAR 75)	PARAMETRIC DATA	= AHP (A COC B	. 000 RN/L	. 120E 0 HO = 10.673-0;	2							
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PAGE 69	(RPRC33) (16 MAR 76)	PARAMETRIC DATA	MACH = 8.000 ALPHA = .000 BETA = .000 RN/L = .500	7 TO = 1233.0 HO = .31093-01				7 TO = 1233.0 HO = .31093-01			
TABULATED SOURCE DATA, THI7, LARC VDHT 646-647	LARCVOHT645 11:17 01 ORBITER CANOPY		.0000 .0000 .N	= .850 MACH = 7.6951 PO = 111.17	DEPENDENT VARIABLE HYHREF	.2130	+:00·	= 7.6951 PO = 111.17	DEPENDENT VARIABLE HIHREF	2130	.0015
8: 4₹ 8: 31¢C		REFERENCE DATA	8990,0000 SA. H. H. B.	500 HAN/41 (1)	SECTION OF LORBITER WINDSHIELD	088:. 0841. 0740.	7.0 %0 1.000 .0205 2.000 .0078 3.000 .0085 4.000 .0085 5.000 .0085	500 HAW/HT(2)	SECTION (!) ORBITER WINDSHIELD	v v v v v v v v v v v v v v v v v v v	0.7.0 0000 0000 0000 0000 0000 0000 000

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HIT, LAPC VOHT 645-E47	
TABULATED SOURCE DATA.	
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DACE	E 8 K # 3) (18 K # 3)	PARAMETRIC DATA	8,000 AHAHA 000.	1348.7 HO = 64.8'-01				1348.7 HO = .64:81-01			
		PARA		11 1				ņ			
			M A H H H H H H H H H H H H H H H H H H	10				0			
LAPC VOHT 645-647				= 491.13				= 491.13			
BULATID SOURCE DATA, H17, LAPC VD	LARCVDH164E .HIT C! CRBITER CANORY			E50 ~40H ≈ 7 9098 PO	DEFENCENT VARIABLE HAMRES			900 ×404 = 7.5098	DEPENDENT VARIABLE HYMREF		
- 1) H H			II		5:30	о О О	ď		2,30	(C)
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PAGT 71	(RPRC35) (16 MAR 76)	PARAMETRIC DATA	MACH * 8.000 ALPHA * .000 BETA * .000 RN/L * 5.000	10 = 1377.; HO = .80824-01				TO = 1377.1 HO = .80824-01		
TABULATED SOURCE DATA, 1417, LARC VDHT 646-647	LAPCVOHTG46 1H17 01 ORBITER CANOPY		. N. 0000 IN. 0000 IN.	.850 MACH = 7.9622 PO = 741.56	DEPENDENT VARIABLE H/HREF			.900 MACH = 7.9622 PO = 741.56	DEPENDENT VARI: BLE H/HREF	
SE SE SE TABULA	PAP	DEFEDENCE CATA	# # # # # # # # # # # # # # # # # # #	B COO D O O O O O O O O O O O O O O O O O	C73(HSON(* #31,880/1 / *0)1035	05:5. 089:. 08T: 0T-0.	0000 F F C C C C C C C C C C C C C C C C	P	CT314SQVIX &311860.11.7 VOILD3S	02:3. ce:. ceri. ct-c

PAGE 2	(95 MAN) (16 MAN 76)	PARAMETRIC DATA	MACH . 8.000 ALPHA000 BETA000 RN/L . 10.00	1450.6 HO = 14335			
'ABULATED SOURCE DATA, THI7, LARC VOHT 646-647	LAFCVCHTSHS [HI7 0] CRBITER CANOPY			. 950 × ACH ≈ 8.1059 PO × 2532 S	CEPENDENT VARIABLE HAHRER	3.5 3.5	
		ATAC BOYERS	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 C C C C C C C C C C C C C C C C C C C	OTELEOCIA duranto, a Noticula		# W O O O O O O O O O O O O O O O O O O

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DEPENDENT VARIABLE HZHREF

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PAGE 73	(16 MAR 76)				3	3750 3000	. 0125	. 0560	0 .6500 .6750	.0074 .0077 .0053 .00557 .0053
	(RPRT01)	PARAMETRIC DATA		7 3501		טאכי	•	93 . 1596	-	•
	_	PARAM	G			0000	. 2916	.4423	.6000	
			MACH #	٤) :	1750		.3435	.5750	7180.
647			#A BEA	23.805	}	. 1500		. 0000	.5500	#800 #800 #800 #900 #900
LARC VOHT 646-647	TANK			# 60	}	. 1250		.0300	.5250	+ 800
	EXTERNAL TANK			9		. 1000		.0000	.5000	.0099 .0099 .0381 .0381 .0399
. IH17.	01+18			7.3731	BLE H/HR	. 0800		.0546	.4750	.0516
RCE DATA	7647 IHI7			MACH	CPENDENT YARIABLE H/HREF	. 0600		.0657	. 4500	.0107 .0112 .0442 .0079 .0110 .9345
TABULATED SOURCE DATA,	LARCVDHT646/647		.0000 IN. .0000 IN.	.850 R	CPENDE!	00+0.		.0102	.4250	. 9000. 9000. 9000. 9000. 8000. 8000. 8000.
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		10		.1750		. 3026	.5750	. 0282		
,		23.805		. 1500		0000.	.5500	2000. 2000. 4000. 5989. 6889.		
LARC VDHT 646-64	TANK	. 23.		1250		.0267	.5250	. 0075		
LARC VD	LARCVOHT646/647 1H17 OI+TB EXTERNAL TANK	90	lu.	.1300		0000.	.5000			
;H17.	01+TB E	7.3731	DEPENDENT VARIABLE H/HREF	.0800		.0487	0564,	0940.	. 9738	
CE DATA,	647 1HI7	*ACI	* VARIAB	0090.		.0585	.4500	00.00 00.00 00.00 00.00 00.00 00.00	.9345	.0053**
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_		MACH BETA	01 81		. 1500		2000	.5500	.0069 .0038 .0238			
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LARC , DH* 5-6-647	ANK	- 117.18		1250		. 5276	. 5250	9800.		
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R 76 TABULATED SOURCE DATA, 1H17, LARC VOHT 646-647	LARCVDHT646/647 1H17 01+T8 EXTERNAL TANK (RPRT03) (16 MAR 76)	REFERENCE DATA	2590.0000 SQ.FT. XMRP = .0000 IN. HATH.8000 IN. BETA = .000 RN/L = 2.000 936.7000 IN. ZMRP = .0000 IN. BETA = .0000 RN/L = 2.000 .0059	= 2.000 HAW/HT(1) = .850 MACH = 7.9115 PO = 497.82 TO = 1379.4 HC = .67283-01	SECTION (1)EXTERNAL TANK DEPENDENT VARIABLE H/HREF	0000. 0275. 0065. 0005. 0271. 0081. 0251. 0001. 0080. 0090. 00+0. 0050. 0010. 0200. 0000.	7+10. 0800. 6240. 0852. 0990. 6230. •••••••	. 3250 . 3500 . 4000 . 6550 . 4750 . 5000 . 5050 . 5500 . 5750 . 6000 . 6550 . 6500 . 6750	. 0005 . 0070 . 0056 . 0037 . 0089 . 0089	.7000 . 0500 . 0500 . 0000 . 0345 . 0500 .	.0172 .0163 .0169 .0100 .0143 .0163 .0111 .0110 .0152 .0029 .0135 .0028 .0143
3 76		REFERENCE	590.0000 SQ.F 474.8000 IN. 936.7000 IN.		1) EXTERNAL T.		·	•			
DATE 16 MAR			Sacr 20	RN/L (1)	SECTION (X/L	PHI 67.500 90.000 112.500 180.000	x/L	PHI 	X/L	PHI .000 45.000 67.500 90.000

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78 5784-01		.3000	. 0138 . 0270 . 08832 6750		.0182		
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	2	. 2500	. 1566 . 1566 . 6250		.0034		
(RPRT03)	1379.4	. 2000	.e300		.0049 .0152 .0201 .0206 .0215 .0231		
	•	.1750	.3240		۶ ۲ ۲		
	5 0	. 1500	.0000		.0058 .0045 .0214 .0215		
_	= 497.82	. 1250	.0287)))	.0037		
LARC VDHT 6' EXTERNAL TANK	0	. 6001.	0000.		.0063 .0213 .0341 .0336 .0232 .0299		
1417, L.	7.9115			, JC/ +	9090:	9738	# 0 + -
BULATED SOURCE DATA, 1H17. LARCVDHT646/647 1H17 01+T8	II	DEPENDENT VARIABLE H/HREF		D04+	0682 .0072 .0068 .0068	3456.	6910.
ABULATED SOURCE DATA. LARCVDHT646/647 IH17	D MACH	EPENDENT		00004	2900	0006	.0090 .0099 .0129 .0145 .0128
TABULATE! LARCVD	. 900		1,000	4000	.0058 .0085 .0085 .0020 .0060	.8500	.0025 .0075 .0189 .0025
·	HT(2) =		. 6627	3750	.0073	. 8000	0128 0100 0107 0170 0195 01.05 01.069
	HAW/HT(. 0337	3500	0057 0073 0073 0069	750	.00147 .0026 .0034 .0034 .0033
	2.000	NA.	. 1856	3250 .	•	:	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0
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DATE 15 MAR	97 A.			TABUL	TABULATED SOURCE DATA,	ICE DATA,	. IHI7.		LARC VDHT 646-647	7+1				PAGE	97
				LAR	LARCVDHT646/647	71H1 7+9	01+18	EXTERNAL	TANK			(RPRT04)) (+)	16 MAR	1 92
	REFEF	REFERENCE DA LA	Ā									PARAMETRIC	DATA		
0.180 8.88 8.88 8.88 8.88 8.88 8.88 8.88	2690.0000 474.8000 936.7000	SQ.FT. IN. IN.	XMRP YMRP ZMRP		.0000 .0000 .0000 .0000					MACH BETA	ı.	8.000 .000	ALPHA RN/L		5.000 5.000
(1) T/NG	= 5.000	0	HAW/HT(1)		.850 MA	MACH	7.9609	8	= 735	735.96	10	1395.9	오	•	.80603-01
SECTION (DEXTERNAL TANK	IAL TANK			DEPENDEN	IT VARIAE	DEPENDENT VARIABLE H/HREF	ļ <u>u</u>							
X/L	.0000	.0050	.0100	. 0200	00400	.0600	. 0800	. 1000	. 1250	.1500	.1750	. 2000	.2500	.2750	.3000
9H1 67.500 90.000												.3299	.0431	0100	.0152
180.000	.2089	.0386	٠١٢٥.	.0080	. 0082	.0834	0569	.0000	.0327	.0000	. 3933	.5375	.1748	.0229	•
x/۲	. 3250	.3500	.3750	4000	.4250	.4500	.4750	.5000	.5250	.5500	.5750	.6000	.6250	.6500	.6750
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67.500 	.0078	.00076	!	.0097 .0321 .0028		.0069		.0240		.0060		0550. 0550. 0450.		.0039	
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LARC VOH	9	ı.	.1000		0000.	. 5000	.0057 .0216 .0371 .0334 .0290	. 0260		
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E DATA.	ı,	VARIABL	. 0600		.0746	.4500	. 0062 . 0073 . 0065	.0062	.9345	.0162
ED SOURC	900 MACH	PENDENI	.0400		٠,007	.4250		.0061	.9000	.00982 .0098 .0175 .0176 .0176 .0158
TABULAT		u	.0200		.0073	4000	.0059 .0087 .0089 .0025	1100.	.8500	.0033 .0090 .0190 .0020
	HAW/HT(2)		0010.		. 5640	.3750	0700.	+700.	.8000	0.100.000.000.000.000.000.000.000.000.0
		AL TANK	. 0050		. 0348	.3500	.0069 .0074 .0071	• • • • • •	.7500	.0108 .000 .0051 .0038
76	5.000	DEXTERN	0000.		1840	.3250	. 0070 . 0080 . 0080	:	. 7000	.0167 .0134 .0135 .0136 .0218
DATE 16 MAR	* (1)	-	×/L	PH1 67.500	112.500	x/L	PHI 1903 145,000 1903,000 112,500 113,500	157.500	×′L	PHI - 000 -

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PAGE (.2750	.0108		.6500	.0193 .0040 .0100 .0331 .0357		
J	DATA	ALPHA RN/L	오		. 2500	.0465	. 1937	.6250	9400.		
(RPRT05)	PARAMETRIC	8.000 .000	1448.2		.2000	. 3854	.7116	.6000	.0121 .0246 .0247 .0235 .0408 .0451		
	ā		10		.1750		.4535	.5750	.0316		
۲		MACH BETA			.1500		.0000	.5500	.0061 .0070 .0374 .0294 .5400		
LARC VDHT 646-647 (TERNAL TANK			= 2535.6		. 1250		.0382	.5250	0,000.		
LARC VDH EXTERNAL T			6		.1000		.0000	.5000	.0117 .0259 .0244 .0429 .0322 .0362		
1H17. 01+TB EX			8.1061	E H/HREF	.0800		.0847	.4750	.0858	.9738	.0215
			•	VARIABLE	.0600		. 1295	.4500	.0069 .0082 .0032	.9345	.0215
TABULATED SOURCE DATA. LARCVDHTG46/647 1H17		22. 22. 20.00	BS0 MACH	PEPENDENT	00+0.		.0087	.4250	. 0068	0006.	7110. 0138. 0189. 0203. 7810.
TABULATI		0000		΄ (. 0200		.0081	DOC+.	.0059 .0052 .00595 .0044 .0071 .0058	.8500	.0063 .0154 .0276 .0025
		XMRP * YMRP *	HAW/HT(1)		.0100		.0843	.3750	.0083	.8000	.0231 .0161 .0141 .0265 .0304 .0365
	DEFERENCE NATA			747			0,467	.3500	.0081 .0087 .0081 .0084	.7500	0031 0090 0307 0090 0090
92	סכננטנ	2690.0000 S 474.8000 1 936.7000 1	.0059	ANGELAGI	.0000		215	.3250	.0079 .0097 .0092	.7000	.0183 .0180 .0170 .0273 .0370
DATE 16 MAR		SAEF # 269	# ~	7 6	×/L	PH1 67.500	112.500	×/L	PH1 - 000 - 45.000 - 67.500 - 112.500 - 157.000 - 187.000 - 180.000	X/L	PH1 - 000 - 52 000 - 67 500 - 90 500 - 11 12 500 - 135 500 - 157 500 - 157 500

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DATE 16 MAR 76	76			TABULA	TABULATED SOURCE DATA. 1H17.	E DATA.		L. 3C VDHT 646-647	IT 646-64	7				PAGE	8 6
i 1				LARC	LARCVDHIG46/647 1H17 01+18 EXTERNAL TANK	347 1H17	01+18 E>	CTERNAL T	ANK			(RPRT05)	ío.		
RN/L (1) =	10.000		HAW/HT(2)	•	.900 MACH	H	8.1061	9	= 2535.6		10	1448.2	웆	Ħ	14397
SECTION (1) EXTERNAL TANK	1)EXTERNAL	TANK			DEPENDENT VARIABLE H/HREF	r VAR1AB	LE H/HREF								
x/L	. 0000	0000	.0100	.0250	.0400	.0600	. 0800	. 1000	. 1250	.1500	. 1750	. 2000	. 2500	. 2750	. 3000
PH1 67.500 90.000						!			į	c c	25.5	.3197 5148	.0417	.0098 .0221	.0151 .0343 .0968
180.000	. 2031	±1±0	.0749	.0073	.0078	. 1132	. 0756	0000.	.0344	0000.	3006	,		i i	010
X/L	. 3250	3500	.3750	.4000	.4250	.4500	.4750	. 5000	.5250	. 5500	.5750	.6000	.6250	0009.	0.
PH1 45.000 67.500 90.300 118.500	.0072 .0087	. 50073 . 50076 . 50073	3700.	.0052 .0040 .0356 .0040 .0052	2900.	.0063 .0074 .0026 .0066	. 0765	.0105 .0234 .0398 .0386 .0290 .0415	. 0036	.0055 .0037 .0336 .0265	4820.	.0109 .0221 .0223 .0213 .0285 .0366 .0404	.0041	.0036 .0036 .0091 .0398 .0321	5 J 20 .
x/L	. 7000	.7500	.8000	.8500	.9000	.9345	.9738								
PH1 .000 45.000 67.500 90.000 112.500 135.000 187.500	.0166 .0163 .0153 .0138 .0338	. 0211 . 0028 . 0081 . 0577 . 0082	.0208 .0145 .0128 .0149 .0239 .0150	. 0057 . 0139 . 0500 . 0500	.0106 .0124 .0171 .0195 .0186	• • ₹	.0194••••								

PAGE 84		19473-01		3060		6500 6750	•		
	(90	£		.2500		(3) · · ·			
	(RPRT06)	==		.2000	.2853	0009	. 0066 . 0089 . 0158 . 0240 . 0286 . 0269		
		01		.1750	41	.5750	.0317		
647		23.805		. 1500	0000	.5500	.0060 .0052 .00577 .0057		
TABLLATED SOURCE DATA, IH17, LARC VDHT 646-647	TANK	= 23		. 1250	4420°	. 5250	. 0050		
LARC V	LARCVOHT646/647 1H17 01+T8 EXTERNAL TANK	9	<u>با</u>	. 1000	0000.	. 5000	.0081 .0150 .0320 .0407 .0341		
, IHI7.	7 01+18	7.3731	DEPENDENT VARIABLE H/HREF	. 0800	.0577	4750	.0571	.9738	••••• •
JRCE DATA	3/647 IHI	MACH	INT VARIA	. 0600	.0853	. 4500	.0086 .0065 .0041 .0053	.9345	***500.
-ATED SOL	₹CVDHT6¥6	.900	DEPENDE	0400	77.0	. 4250	. 0065	.9000	.0091 .0110 .0110 .0089 .0076
TABU	آ ر	5) •		.0200	1410.	. +000	.0082 .0134 .0134 .0383 .0387 .0111	.8500	.0028 .0040 .0046 .0046 .0046
		HAW/HT(Ü	0010	.0751	.3750	. 0090	.8000	00000000000000000000000000000000000000
		.100	MAL TANK	.0050	. 0268	.3500	.0070 .0062 .0081	.7500	\$800 6800 6800 6400 1900 1900
AR 76			(1)EXTER	.0000	. 2035	. 3250	. 0097 . 0098 . 0093	.7500	.0081 .0139 .0550 .0550 .0555
DATE 16 MAR		RAVE C	SECTION (1) EXTERNAL	٦/ x	64.15 60.00 60.00 60.00 60.00 60.00 60.00	٦/ ٢	PH1 643,000 67,000 67,000 67,000 187,000 187,000 187,000 187,000	x /L	60000000000000000000000000000000000000

85	_		00	.81195-01		3000	0229 0447 1278	6750	. 0255		
PAGE 8	16 MAR 76		5.000	.8		. 2750	.0073	. 6500	. 0127 . 0069 . 0127 . 0235 . 0236		
	-	DATA	ALPHA	9		. 2 500	.0571	.6250	. 0062		
	(RPRT07)	PARAMETRIC	8.000 .000	1396.0		.2000	.3703	. 6000	.0173 .0169 .0169 .0221 .0312 .0368		
		A		T0 #		.1750	97	.5750	.0321		
Ľ.			MACH BETA			.1500		. 5500	.0041 .0319 .0319		
LARC VOHT 646-647	TANK			= 737.51		. 1250	1000	. 5250	. 0056		
LARC VD	EXTERNAL '			8	lı.	. 1000		.5000	.0153 .0450 .0493 .0389 .0380		
IH17.	01+18			7.9615	LE H/HRE	. 0800	u u	.4750	.0792	.9738	• • •
CE DATA.	647 1H17			MACH =	DEPENDENT VARIABLE H/HREF	.0600	ć	. 4500	.0091 .0043 .0043	.9345	.0045
TABULATED SOURCE DATA,	LARCVDH1646/647 1H17		.0000 IN.	850 MA	DEPENDEN	0040.	ü	. u.sso	900	9006.	.0076 .0151 .0151 .0179 .0186
TABULA	LARC					. 0200		1+10.	.000 .0096 .0161 .0634 .0045 .0128	.8500	.0049 .0084 .0077 .000
		₹.	XMRP #	HAW/HT(1)		.0100	Č	.3750	0900 ·	.8000	
		REFERENCE DATA	80.FT.	7H 000	VAL TANK	.0050	C P P	.3500	.0079 .0060 .0079 .10.	. 7500	.000. .000. .0076 .0059 .010.
2 76		REFER	2690.0000 474.8000 936.7000	ا ئ.ر	1 JEXTER	0000	r ū	.3250	.000. .0008 .0008 .0008	.7000	
DATE 16 MAR			SAEF SCALE	P:// (1)	SECTION (1) EXTERNAL	7/X	67.500 90.000 11.2500	180.300 X/L	# ####################################	X/:	14 76 000 000 000 000 000 000 000 000 000

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		.81195-01		3000	.0206 .0401 .0401	:	.6500 .6750	.0.10. .0.00. .0.00. .0.00.	0263 0263 0283			
1	5	유		. 2500	, 5120.	. 1897). 0259,	- · · ·				
	(RPRT07)	1396.0		.2000	.3173	3744.	.6000	.0156 .0152 .0152 .0199	.0327	. 000		
		10		.1750		.3427	.5750		i d	5220·		
7		737.51		. 1500		.0000	.5500	.0037 .0057	.0287	.0030		
TABULATED SOURCE DATA, 1H17, LARC VOHT 646-647	TANK			. 1250		. 0248	.5250		į	. 6051		
LARC VD	XTERNAL	P0	L.	.1000		. 0000	.5000	.0138 .0405 .0389	.0261	1 640.		
1417.	LARCVDHT646/647 1H17 01+TB EXTERNAL TANK	7.9615	DEPENDENT VARIABLE H/HREF	. 0800		.0596	4750			6070.	.9738	
CE DATA,	547 IHI7	MACH	IT VARIAE	. 0600		1054	. 4500	. 0082	9890	. 0043	.9345	. 1400
TED SOUR	VDHT646/	.900 MA	DEPENDEN	0040.		.0139	. 4250			.0057	.9000	. 2069 . 0113 . 0151 . 0161 . 0184
TABULA	LARC			.0200		7210	0004	.0078 .0078 .0145	0110	.0016	.8500	. 0074 . 0076 . 0218 . 0069
		HAM/HT(2)		.0100		000	.3750		. 0054	.0085	0008	0000 17000 17010 17110 1
			IAL TANK	0000		5000	.3500	1700. 1800.	.007:	:	.7500	5733. 5530. 6550. 8253. 7600.
ر بر		5.003	DITION (I)EXTERNAL			i c	.3250	₹ 6 00.	.0059	•	. 7000	
2 U	'n 5	2	2 POT FORES	× × ×	67.000	200 CE CE CE CE CE CE CE CE CE CE CE CE CE	23 25 26 27 28 28	H . 1000 000 000 000 000 000 000 000 000	 	000000000000000000000000000000000000000	XVC	PH

DATE 15 HAR	92 -			TABULA	TABULATED SOURCE DATA,	CE DATA.	1H17.	LARC VOHT	HT 646-647	47				PAGE	63
				LARC	LARCVDHT646/647 1H17 01+T8+X23 EXTERNAL	547 1H17	01+TB+X	23 EXTER	NAL TANK			(RPRT08)	-	16 MAR	16)
	REFER	REFERENCE DATA	<								3	PARAMETR1C	DATA		
SAEF LPEF = 26 BREF = 50 CALE = 50 CALE	24.00.00 24.80 20.00 20.70 20.00 20.00	gzz E	2 day	000	00000 00000 00000					MACH BETA	# # I <	8.000 .000	ALPHA RN/L	н н	. 100
Ph/L (1)	7.	8	HAWATE 13		850 MACH	•	7.404.4	8	89.	29.775	T0 .	1231.5	皇		. 30653-01
SECTION (LIEXTEPNAL	AL TANK			DEPENDENT VARIABLE H/HREF	T VARIAB	LE H/HRE	L.							
X/F	. 0000	. 0050	.3100	.020n	00+0.	. 0600	.0800	.1000	.1250	. 1500	.1750	.2000	. 2500	.2750	3000
67.500 90.000												.1364	. 0395	.0103	.0069
180.000	0680.	.0329	. 0269	.0033	.0037	.0388	6810	.0000	.0271	0000.	.3542	5115.	.0741		. 0524
×יר	. 3250	.3500	.3750	COC4.	.4250	. 4500	.4750	.5000	.5250	.5500	.5750	.6000	.6250	.6500	.6750
PH1 55 900 90 500 137 500 157 500 180 000	9600. 8010. 8010.	0000. 0000. 0000. 0000. 0000.	88000.		• 8+00°.	.0080 .0080 .0036	3610.	.0023 .0056 .0113 .0159 .0166	. 0022	.0065 .0049 .0114 .0116	.0152	.0033 .0036 .0118 .01133 .0105 .0105	9200.	7800. 0000. 0000. 0000. 9010.	9600.
×יר	. 7000	.7500	.8000	.8500	.9000	.9345	.9738								
14 - 000 - 55 - 000 - 67 - 50 - 50 - 11 - 50 - 50 - 50 - 50 - 50 - 50 - 50 - 50	8 - 7 8 8 8 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	8847388 66666 66666 66666 66666 66666 66666 6666		0000 0000 0000 0000 0000 0000 0000	.0030 .0020 .0020 .0010 .0045	. 0032	.0028								

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88		.30653-01		.3000	.0061 .0115 .0295	. 045A	2	. 0085		
PAGE		•		.2750	. 0092 . 0208	4	0000.	.0077 .0045 .0083 .0085 .0095		
	. 80	ç		.2500	.0351	0000.	ncaa.	.0023		
	(RPRT08	1231.5		. 2000	.1203	1854	0000.	.0029 .0047 .0105 .0105 .0006 .0094		
		10		. 1750	,	9103	00/0.	.0135		
47		29.775		. 1500		0000.	nnee.	.0058 .0044 .010:		
HT 646-6	NAL TANK	. 69		1250	!	5450.	. 5¢50	. 0020		
TABULATED SOURCE DATA, IHIT, LARC VDHT 646-647	LARCVOHT646/647 1H17 01+T8+X23 EXTERNAL TANK	8	l.	0001	,	0000.	0000	.0020 .0050 .0050 .0050 .0050		
[H17.	01+T8+X	7.404.7	LE H/HRE	0800	!	.0168	DC/ +.	.0173	.9738	. 0025
CE DATA.	647 1H17	•	T VARIAB	. 0609	!	3 mm	0064.	.0071 .0071 .0032	3456.	.0028
TED SOUR	VCHT646/	900 MACH	DEPENDENT VARIABLE H/HRE7	0040	1	.0033	. ()	• • •	. 9000	00000000000000000000000000000000000000
TABULA	LARC			. 0200	,	6200.	0004.	# W # W # # # # # # # # # # # # # # # #	.8530	60000 00000 00000
		HAM/HT(2)		0010		95 F	90.5	.0079	3008	######################################
		.100 HA	AL TANK	9990	1 1 1	OI C	. 5500		.7500	000000 00000 00000 00000 00000 00000
φ			1)EXTERNAL	0000.		787	0025.	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$.7000	######################################
DATE 16 WAR		Phyllic (1)	SECTION .	ų, K	1 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ດ ເກີ	. / x	# ####################################	,! *	645 000 000 000 000 000 000 000 000 000 0

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DATE 15 MAR	A 76			TABUL	ATED SOU	TABULATED SOURCE DATA.		LARC VD	w	ţ				PASE	68
				LAR	CVDHT646	LARCVDHT646/647 1H17		01+T8+X23 EXTERNAL	NAL TANK			(RPRT09)) (6(16 MAR	. 9L
	REFER	REFERENCE DATA	⋖								_	PARAMETR1C	DATA		
20 mm mm mm mm mm mm mm mm mm mm mm mm mm	2690.0000 2.4000 635.7000 635.7000); () 2 / 2	**************************************		.0000 .0000 .0000 .0000 .0000					MACH BETA	1 I	9.000 .000	ALPHA RN/L		.500
- · · · · · · · · · · · · · · · · · · ·	ù; H	6	HAM/HT(1)		.850 H	MACH	7.6928	6	= 108.93	•	٠ و	+ 1269.4	9	•	.30968-01
SEC1:08	: : E K " E RNAL	AL TANK			General Control	NT VARIAE	CEPENDENT VARIABLE H/HREF	li.							
1/1	. 0000	. 3050	.0100	.0200	00+0	.0600	. 0800	. 1000	. 1250	. 1500	.1750	. 2000	.2500	.2753	3000
84.15 80.15 80.05 80.05 80.05 80.05												.3228	. 0569	609-	. 0412 . 0412
၌ ၁၈	29.5	. 0299	.1032	.0109	6110.	7560.	.0471	0000	. 0254	0000.	. 3602	. 5055	5571.	. 000	
٦ ×	3250	.3500	.3750	C001.	. 4250	. 4500	.4750	. 5000	. 5250	5500	.5750	.6000	.6250	.6500	.6750
00000000000000000000000000000000000000	. 00083 . 00083 . 07083	. 00081 . 00085 . 00085 . 00085 . 00085	FF00.	######################################	• • • • •	.0057 .0057 .0091	0497	.0091 .0128 .0378 .0290 .0344	. 0058	.0048 .0048 .0059 .0557	# I M O .		* * * * * * * * * *	.0050 .0050 .0050 .0050 .0050	® ≠800.
×	. 7003	.7533	.8300	.8500	. 9360	3456.	.9738								
	00000000000000000000000000000000000000	# 0 W M M 0 # W M + M 0 0 0 0 0 0 0 0 0 0 0 0	00000000000000000000000000000000000000	8000 8000 8000 8000 8000 8000	0000000 0000000 0000000000000000000000	9110	5800 .								

06		30968-01		3000	.0177 .0367 .0557 .1025	,6750	. 0222		
PAGE				.2753	. 0084 . 0289	.6500	0.0003		
	(6)	우		. 2500	,0507	.6250	. 0039		
	(RPR109)	1269.4		. ≥000	. 2840	.6000	.0072 .0118 .0136 .0246 .0268 .0219		
		10		.1750	.3154	.5750	. 0281		
7				. 1500	. 0000	.5530	.0043 .0036 .0204 .0203		
TABULATED SJUPCE DATA, 1H17, LARC VDHT 646-647	AL TANK	■ 108.23		. 1250	. 0227	. 5250	. 0052		
LARC VDH	3 EXTERNAL	8		. 1000	0000	.5000	.0081 .0115 .0256 .0337 .0259		
1417.	01+18+X2	7.6928	E H/HREF	.0800	0450	.4750	. 0443	.9738	. 0079
E DATA.	47 1H17	n	VARIABL	.0600	. 0851	,4500	.0054 .0051 .0073	.9345	.0107
ED SOUPC	LARCVDH1646/647 1H17 01+18+X23	900 MACH	DEPENDENT VARIABLE H/HREF	.0400	.0106	.4250	5.007	. 9000	.0084 .0133 .0146 .0152 .0150
TABULAT	LARCV	H.	u	. 0200	7600.	. 4000	.0065 .0110 .0332 .0058 .0058	.8500	.0034 .0091 .0099 .0059
		HAW/HT(2)		.0100	7160.	.3750	. 0069	.8000	.0123 .0183 .0175 .0174 .0176
			L TANK	.0050	. 0268	.3500	.0073 .0058 .0056 .0056	.7500	.0084 .0036 .0058 .0058 .0038
76		. 500	I SEXTERN	.0000	91.	. 3250	.0075 .0080 .0063	.7000	
DATE 15 MAR 76		RN/L (1)	SECTION (1) EXTERNAL TANK	X/L	PHI 57.500 90.000 112.500	XVL	PH1	X/L	PHI ,000 45,000 67,500 90,000 112,500 135,000 180,000

16 (97			.66755-01		000	2005 .	.0250 .0641	.1015	.6750		. 0218						
PAGE 16 MAR 7		. u			1	ν. Ο	1410.		.6500		.0173 .0089 .0152 .0219 .0267						
		ALPHA RN/L	오			. 2500	. 0854	.1745	.6250		9800.						
(RPRT10)	ייאשווב וייזי	9.000 .000	1339.3		,	. 2000	.3348	.5428	.6000		.0165 .0142 .0171 .0274 .0233 .0233						
d		4 #	10			.1750		.3735	.5750		.0312						
r		MACH				. 1500		.0000	.5500		.0057 .0079 .0238 .0248						
LARC VDHT 646-647 23 EXTERNAL TANK			= +93.62			. 1250		.0280	.5250		0600:						
1H17, LARC VOHT			5			.1000		.0000	5000		. 0188 . 0170 . 0302 . 0371 . 0294 . 0350						
1H17.			7.9104		E H/HREF	. 0800		.0497	4750		. 0580	((.97.58	.0128			
			B	_	VARIABLE	.0600		.1535	מ	000	.0061 .0097 		.9345	.0123			
ABULATED SOURCE DATA. LARCVOHTG46/647 1H17			RSO MACH		UEPENDENT	.0400		.0131	0	המי			. 9000	.0108 .0107 .0136 .0152 .0150			
TABULATE LARCV[00000.		•	2	. 0200		0.25		0004.	.0053 .0188 .0188 .0496 .0057 .0158		.8500	.0076 .0149 .0037			
	⋖	×	⋖		XMRP = ZMRP =	/HT(1) #			.0100		ا ا) (.3750	0010.	0000	.8300	0115 0115 0115 0115 0173 0156 0156
	REFERENCE DATA	SO.FT.			L TANK	.0050		0550) (. 3500	0 0 0 0 v	u 0	.7530	4100 4100 4100 4005 4005 4005 6010			
76	REFERE	2690.0000 S 474.8000 I 936.7000 I	. 0059	กกก น	1) EXTERNAL	.0000		4	r 1	. 3250	.0086		.7000	.0108 .0194 .0198 .0210 .0210			
DATE 16 MAR			# ·	# []]:a	SECTION (1	X/L	PHI 67.500	112.500	000.001	x/r	PHI .000 .000 .000 .000 .000 .000 .135000	180.000	x/r	PHI . 000 45.000 90.000 112.500 135.000 157.500			

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92		.66755-01		.3000	.0524 .0573 .1057	.6750	9610.		
PAGE		Ψ.		.2750	.0301	.6500	.0155 .0080 .0197 .0197		
	6	오		.2500	.0760	.6250	7,000.		
	(RPRT10)	1339.3		2000	.4620	.6000	.0149 .0128 .0154 .0247 .0219 .0219		
		10		.1750	.3198	.5750	. 0280		
7+				.1500	0000.	.5500	.0051 .0071 .0214 .023		
LARC VDHT 646-647	VAL TANK	+93.62		. 1250	. 0251	.5250	.0081		
LARC VD	LARCVDHT646/647 1H17 01+18+X23 EXTERNAL TANK	6	le.	0001.	0000.	.5000	.0169 .0153 .0271 .0333 .0334		
1417,	01+TB+X	7.9104	DEPENDENT VARIABLE H/HREF	.0800	9440.	.4750	.0520	.9738	.0115
CE DATA.	647 IH17	MACH =	T VARIAB	.0600	.1359	.4500	.0055 .0087 .0064	3459.	1110.
TABULATED SOURCE DATA,	VDHT646/	900 MA	DEPENDEN	00+0	.0118	.4250	••	0006.	.0097 .0096 .0096 .0137 .0135
TABULA	LARC			. 3200	5110.	4000	.0098 .0169 .0145 .0045 .0063	.8500	.0069 .0134 .0181 .0033
		HAW/HT(2)		.0100	.2113	.3750	.0090	.8000	90100 90100 90100 9000 9000 9000 9000 9
			AL TANK	.0050	.0303	.3500	.0080 .0093 .0086 .0084	. 7500	.0055 .0055 .0116 .0183
9,		≈ 2.000	DEXTERN	.0000	. 1889	.3250	.0077 .010 .0103	.7000	.0097 4710. 70173 .0165 .0189
DATE 16 MAR		RN/L (1)	SECTION (1) EXTERNAL TANK	X/L	PH1 67.500 90.000 112.500	X/L	PHI .000 45.000 90.000 112.500 135.000 180.000	x/L	PHI

m	_		00	00	79966-01		,	3000	.0273	0967	6750	.0211		
	R 76		ō	5.000	. 79			O	0148		. 6	. 0174 . 0098 . 0170 . 0241 . 0247		
PAGE	16 MAR			•	•			. 2750	0.5		.6500	999999		
) (1)	: DATA	AHG IA	R Y Y	5	2		. 2500	.0921	.1723	.6250	.0091		
	(RPRT11)	PARAMETRIC	0	000	1 375	13/0.4		. 2000	.3403	.5632	.6000	.0154 .0179 .0179 .0250 .0250 .0250		
		PA	,		ot •	4		. 1750		3907	5750	0321		
				BETA		2		=		•	•	•		
Ļ			3	ξ₩	1	.36		. 1500		.0000	.5500	.0054 .0081 .0258 .0264		
LARC VOHT 646-647	IAL TANK					= 723.36		. 1250		.0297	.5250	6600.		
LARC VDF	3 EXTERNAL					0	tı.	. 1000		0000	.5000	.0193 .0190 .0301 .0390 .0378		
IH17.	LARCVDHT646/647 1H17 01+TB+X23				7.9591		E H/HREF	. 0800		.0539	.4750	+ 090	.9738	.0133
DATA.	7 IH17				850 MACH =		VARIABLE	.0600		1749	.4500	9500. 6600. 9600.	.9345	.0132
ABULATED SOURCE DATA.	HT646/64			<u> </u>			DEPENDENT	. 0400		.0136		ער מכו	0006.	.0099 .0106 .0136 .0156 .0151
TABULATE	LARCVD			00000		HAW/HT(1) =	8	. 0200		.0132		.0061 .0115 .02.9 .0522 .0077 .0073	.8500	.0085 .0156 .0207 .0046
				XMRP # YMRP # ZMRP #				.0103		2560	.3750	5010.	. 8000	0110 0110 0115 0115 0115 0115 0115
		OCCUPANT DATA	יייר כייי	690 0000 SQ.FT. 47.8000 IN. 936.7000 IN.	.0059		IL TANK			0.352	.3500	7000. 0100. 0010.	.7500	.0139 .0071 .0130 .0253 .0105
76		00000	ולים באני מעם באני				DEXTERN	.0000		ָה הליני	.3250	.0092 .0127	. 7000	.0126 .0188 .0187 .0180 .0237
DATE 16 MAR				SREF = 2690 LREF = 47. BREF = 936.		RN/L (1) =	SECTION (1) EXTERNAL	X/L	PH1 67.500	118.500	, io	PHI . 000 45.000 67.500 90.000 1.25.000 135.000	180.000 X/L	PH1 .000 .45.000 99.000 112.500 135.000

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DATE 16 MAR 76	97 8			TABULA	ATED SOUF	RCE DATA	ABULATED SOURCE DATA, IHI7, LARC VOHT 646-647 LARCVOHT646/647 IHI7 01+T8+x23 EXTERNAL TANK	LARC VD	HT 646-6	(~ ±			=	PAGE	\$
						101 / 101	X+8:+10 /	CS EXIEN	NAL ANK			(RPRTII)	11)		
RN/L (:)	5.000		HAW/HT(2)		. 900 HA	MACH #	7.9591	0	= 723.36	.36	10	1376.4	9	ij	.79966-01
SECTION (1) EXTERNAL	DEXTERN	AT TANK			DEPENDEN	IT VARIA	DEPENDENT VARIABLE H/HREF	l L							
x/L	. 2000	.0050	.0100	. 0200	.0400	. 0600	. 0800	.1000	. 1250	. 1500	.1750	. 2000	.2500	.2750	.3000
PHI 67.500 90.000 112.500	1.868	.0316	. 2222	9110.	.0123	. 1542	949.0	0000.	.0267	0000.	. 3330	2945 5474.	.0821	.0329	.0246 .0650 .1121 .0862
x/٢	. 3250	. 3500	.3750	0004.	.4250	. 500	.4750	.5000	.5250	.5500	.5750	.6000	.6250	.6500	.6750
PHI . 000 45.000 90.000 112.500 135.000	.00083	7800. 6000. 4600.	. 0092	.0103 .0103 .0193 .0463 .0469 .0069	•			. 0174 . 0171 . 0271 . 0350		.0049 .0073 .5230		. 0148 . 0161 . 0247 . 0244		.0089 .0089 .0153	
180.000		.0160	-0095	.0031	.0077	. 0084	. 0541	.0238	6800.	.0047	.0289	. 0254	. 0082	. 0035	.0190
X/L	. 7000	.7500	0 L DB.	.8500	. 9000	.9345	.9738								
00000000000000000000000000000000000000	.0114 .0169 .0169 .0162 .0213	6510 6510 65113 7113 7113 7113 7113 7113 7113 7113	0010101000	.0077 .0141 .0186 .0041	.0096 .0096 .0123 .0136	9110.	.0120								

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PAGE	16 MAR 76		<u> </u>		 •	0376	.0186	.0479	0083	onco.	.0229 .0138 .0227	0397	. 0000	
	~			Ġ	운	0000	. 1267	.1781	5250	00.00		5	60.0	
	(RPRT12)	DADAMCTORY	8 000 .000		1.00		.3858	.7027	6000		.0233 .0279 .0186 .0311	.0476) Sign	
		ā		•		1750		.4761	5750			0455	3	
			MACH BETA	Ę	2				•	•	0 -			
-647	¥			7541		. 1500		0000.	. 5500		. 0120 . 0091 . 0494 . 0395			
DHT 646	RNAL TA			ñ.		. 1250		.0350	.5250			.0129		
1H17, LARC VDHT 646-647	01+T8+X23 EXTERNAL TANK			G.		.1000		.0000	.5000		.0222 .0340 .0343 .0460	.0442		
				8.1063	LE H/HREF	. 0800		.0683	.4750			. 0722	6.38	.0165
RCE DATA.	7H1 749			850 MACH *	DEPENDENT VARIABLE	.0600		.2189	.4500		.0097 .0151	.0121 .0117	.9345	. 0185
TABULATED SOURCE DATA,	LARCVDHT646/647		.0000 .0000 .N.		DEPENDEN	. 0400		.0179	.4250		•	.0137	. 9000	.0121 .0197 .0225 .0228 .0212
	LAR					.0200		.0133	.4000		.0131 .0135 .0346 .0100 .0100	. 0.058 . 0.058	.8500	.0194 .0196 .0291 .0203
		۲.	XMRP YMRP ZMRP	000 HAW/HTC 13		.0100		.5336	.3750		. 0134	.0147	.8000	.0215 .0138 .0138 .0236 .0310 .0233
		REFERENCE DATA	S0 		VAL TANK	. 0050		.0416	.3500		.0116 .0138 .0118	٠٦٤٥٠	. 7500	.0197 .0203 .0203 .0203
IR 76		REFE	2690.0000 474.8000 936.7000	eg eg	1)EXTEPNAL	. 0000		. 2279	. 3250		.0116 .0160 .0136		.7000	. 0201 . 0181 . 0242 . 0312 . 0450
DATE 16 MAR			SREF # 2 LREF # BREF # SCALE #	RN/L (1)	SECTION (×/L	PHI 67.500 90.000	180.000	.'.X	ij	67.000 67.000 67.000 67.11 600.000 600.000	180.000	7/x	PHI 0000 45.000 90.000 112.500 155.000 157.000 160.000

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DATE 16 MAR 76	37.5			TABUL	ATED SOUF	RCE DATA	TABULATED SOURCE DATA, IH17, LARC VOHT 646-647	LARC VD	HT 646-6	+7				PAGE	96
				LAR	CVDHT646,	.IHI 2+9/	LARCVOHT646/647 1H17 01+T8+X23 EXTERNAL TANK	(23 EXTER	NAL TANK			(RPRT12)	12)		
RN/L (1) =	• 10.000		HAW/HT(2)		.900 MA	MACH =	8.1063	8	± 2541.3	M. 1	5	1430.1	웃		.14365
100 1	SECTION (1) EXTERNAL TANK	AL TANK			DEPENDEN	T VARIA	DEPENDENT VARIABLE H/HREF	<u>ı.</u>							
	. 0000	.0050	.0100	. 0200	0400	.0600	. 0800	.1000	. 1250	. 1500	.1750	. 2000	.2500	.2750	.3000
PHI 67.500 95.000 112.500	0.1970	.0375	.3893	.0120	.0161	. 1843	.0611	0000.	.0316	. 0000	.3616	.5163	.1130	.0168	.0305 .0774 .2141
	. 3250	.3500	.3750	0004.	.4250	.4500	.4750	.5000	. 5250	.5500	.5750	.6000	.6250	.6500	.6750
PH	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	.010. .0107 .0107 .0118	.0121	.0118 .0122 .0310 .0608 .0090 .0136 .7100	.0123	. 0088 . 0109 . 0109	4 490.	.0200 .0305 .0308 .0412 .0333	7110.	. 00.09 . 00.09 . 044 . 0354	80+0.	. 0210 . 0251 . 0168 . 0280 . 0363 . 0370 . 0427	7410.	.020. .0125 .0204 .0376 .0376	. 3287
	. 7000	.7500	0008.	.8500	.9000	. 9345	. 9738								
PH 67.500 67.500 67.500 87.500 86.200	.0181 .0163 .0218 .0281 .0339	.0178 .0161 .0183 .0188	0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	.0175 .0177 .0262 .0183	.0109 .0178 .0203 .0206 .0191	.0167	9410.								

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76	, 97		000	. 18053-01		. 4250		. 0092	.9300	00000000000000000000000000000000000000			.18053-01		.4250	
PAGE	16 MAR					4000	.0080 .0081 .0070 .0050 .0050	.0024	.8500	.0061		i			4000	.0072 .0073 .0063 .0053
	~	DATA:	ALPHA RN/L	오		.3750		.0095	.8000	.0066 .0050 .0056 .0056 .0068 .0060			£		.3750	
	(RPRT13	PARAMETR!C	8.000 .000	1235.8		.3500	9 600.	₩S10.	.7500	.0051 .0069			1235.8		.3500	
		ď		10		. 3000	. 0296 . 0893	.1159	.7000	.0053 .0055 .0055 .0055 .0069 .0069					.3000	. 0148 . 0264 . 0795
۲			MACH BETA			.2500		. 1532	.6750	9400.			0 TO		.2500	
VDHT 646-647				14.840		.2000	.2796	4337	6500	0048 0075			14.840		2000	.2476
LARC VDH	TANK			ō.		.1500		0000	6250	. 0065			P		1500	·
IH17.	EXTERNAL			.2734	: H/HREF	. 1000		.0000	.6000	.0063 .0075 .0069 .0061 .0057 .0048			.2734	H/HREF	. 1000	
E DATA,	1H17 T8 EX			. 7	VARIABLE	0800		9900	5750	.0053			- 7	VARIABLE	. 0800	
TABULATED SOURCE	LARCVDHT647 18		<u> </u>	850 MACH	JEPENDENT	. 0600		. 0800	. 5500	. 0052 . 0060			NACH	CEPENDENT	. 0600	
TABULATE	LARCV		00000	•	ξ.	00+0		. 0010.	. 5250	7800			. 900	ö	0400	
			XMRP YMRP ZMRP	HTC DTH		0500		. 1600	5000	00082 00082 00683 0059 0059			HT(2) =		. 0200	
		REFERENCE DATA	<u>.</u>	HAW/HT(TANK	0010		0635	4750		9738	0063	HAW/HT	TANK	0100	
5. 5.		REFEREN	2690.0000 SQ 474.8000 IN 936.7000 IN	. 100	1) EXTERNAL	. 0000.		. 1819	. 4500		. 9345	. 000.	. 100	1) EXTERNAL	. 0000	
DATE 16 MAR				10 7/4	SECTION (۲۲	# 500 000 000 000 000 000 000 000 000 00		X/L		X /L	110	PRVL (1)	SECTION (X/L	PH1 .000 45.000 67.500 90.000

			.4000	.0066		.8500 .9030	00000000000000000000000000000000000000	
113)			.3750		.0085	. 8 000	.0058 .0045 .0055 .0055 .0068 .0053	
(RPR113)			.3500	. 0085	.0137	.7500	.0061 .0061	
			3000		.1031	.7900	.0047 .0049 .0059 .0053 .0053	
745			.2500		. 1351	.6750	1+00.	
LARC VDHT 646-647 TANK			. 2000		. 3824	.6500	. 0043 . 0667	
		<u>ı.</u>	.1500		. 0000	.6250	. 0059	
EXTERNAL		DEPENDENT VARIABLE H/HREF	.1000		. 0000	.6000	.0056 .0067 .0061 .0057 .0057	
ICE DATA.		IT VARIAE	. 0800		. 0059	.5750	. 0047	
TABULATED SOURCE DATA, [H17. LARCVDHTG47 [H17 T8 EXTERNAL	006	UEPENDEN	.0800		1700.	.5500	.0046 .0053	
TABULA LARC			00+.0.		. 0089	.5250	. 000	
	HAW/HT(2)		. 0200		.0081	.5000	. 0073 . 0079 . 0056 . 0058 . 0058 . 0052	
	.100 HA	IAL TANK	0010.		.0565	.4750	. 9738	. 0056
97 A		DEXTERN	0000.		.1615	. +500	.0074 .0074 .0345	ຫ ເວ
DATE 16 MAR 76	RN/L (:)	SECTION (1) EXTERNAL TANK	٦/x	PH1 135.303	180.000	×/L	PHI 645.000 645.000 1178.000 1187.000 1187.000 1180.000 1180.000	180.003

DATE 16 MAR	3 76			TABULATED	ATED SOURCE	ICE DATA,	, IHI7,	LARC VDHT	1T 646-647	7				PAGE	66
				LAR	LARCVDHT647	1H17 T8	EXTERNAL	TANK				(RPRT14)	_	15 MAR 7	. 5
	PEFEDENCE	ENCE DATA	.								à	PARAMETRIC	DATA		
	36.7000 36.7000	8 2 Z	X X X X X X X X X X X X X X X X X X X		.0000 IN.					MACH BETA	H #	8.000 .000	ALPHA RN/L	N 18	. 500
á	iú H	<u>ت</u>	HAMZHTE 13		.850 MA	MACH .	7.6879	8	• 105.69		10	1255.1	오		30594-01
SECTION (1 JEXTEPNAL	AL TANK			JEPENDENT	IT VARIABLE	3LE H/HREF	lı.							
×	. 0000	.0150	.0200	0040.	. 0600	. 0800	. 1000	. 1500	.2000	.2500	.3000	.3500	.3750	.4000	. 4250
11 04 00 00 00 00 00 00 00 00 00 00 00 00									.3057		.0173 .0319	£600°.		.000. .0067 .000. .000. .000.	
80.00 80.00	. 1952	.0668	1600.	.0100	.0085	9900.	0000.	0000.	4928	. 1623	. 1216	.0161	0600.	.0023	.0088
x/~	. 4500	.4750	.5000	. 5250	.5500	.5750	.6000	.6250	.6500	.6750	.7000	.7500	.8000	.8500	.9000
PH	0600 0 0	. 6082	0000000 000000 0000000 000000000000000	. 0052	.0055 .0060 .0075	.0072	.0059 .0059 .0059 .0059 .0053	.0068	.0050 .0059	. 0060	.0056 .0065 .0069 .0065	. 0060 . 0060 . 0060	.0055 .0063 .0063 .0060 .0041 .0064	.0061 .0069 .0057	. 0056 . 0056 . 0056 . 0059 . 0063
X/L	.9345	.9738													
PH1 180.000	9+00.	.0054													
RN/L (13	٠. بن	. 500 HA	HAW/HT(2)		.900 HA	MACH .	7.6879	8	= 105.	69.	10	1255.1	皇		.30594-01
SECTION (1)EXTERNAL	AL TANK			DEPENDENT	NT VARIABLE	H/HRE	L.							
X/L	0000.	.0100	. 0230	0040.	. 0600	. 0800	. 1000	.1500	.2000	.2500	.3000	.3500	.3750	0004.	.4250
PH1 .000 65.000 67.500 90.000					ì	go x	अस्ति स्ट		.2698		.0155 .0285			.0068 .0060 .0066 .0065	

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REPRODUCEMENTY OF THE ORIGINAL POST IS POOR

DATE 16 MAR	R 76			TABULA	TABULATED SCURCE DATA, 1H17, LARC VOHT 646-647 LARCVOHT647 1H17 T8 EXTERNAL TANK	CE DATA.	1H17. EXTERNAL	LARC VO	4T 646-64	r .		(RPRT14)	ŝ	PAGE	100
FW/L (1)		.500 HAI	HAM/HT(2)		900										
SECTION (1) EXTERNAL TANK	1)EXTERN	HAL TANK			DEPENDENT VARIABLE H/HREF	T VARIAB	LE H/HRE	la.							,
×	0000.	0:00	.0200	0040.	.0600	0080.	. 1000	. 1500	. 2000	.2500	.3000	.3500	.3750	0003.	, kon
H M												.0083		.0081	
157.50	SEC	. 2596	.0081	0600.	.0376	.0059	.0000	0000.	.4313	1441	.1082	. O 1 4 4	. 0080	1500.	9700.
X/L	. +500	. 4750	0003.	.5250	.5500	.5750	.5000	.6250	.6500	.6750	. 7000	.7500	0008	. 8500	
000000000000000000000000000000000000000		.9074	6900 +900 +900 +900 +900 +900 +900 +900	7,000.	\$900°.	. 0065		.0061	. 0045 . 0067	≯ \$000.	. 0050 . 0058 . 0058 . 0054 . 0054	.0054 .0057 .0053	0000 0000 0000 00037 00037 00055	. 0055 . 3062 . 0051	
180 : 000	. 900	0 100.													

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101	- -		000.	56874-01		. 4250		0000.	.9000	00			.66874-01		052¥.	
PAGE	16 MAR 7		∩u # #			000 1 .	.0079 .0076 .0076 .005 .005	.0016	.8500	.0058 .0058 .0058			•		, 1 000	.0071 .0069 .0069 .0059
	_	DATA	ALPHA RN/L	웆		.3750		.0077	.8000	00.00 00.00 00.00 00.00 00.00 00.00 00.00			£		.3750	-
	(RPRT15	PARAMETR1C	в. 000 . 000	1372.8		.3500	2800:	.0143	.7500	.0045 .0047 .0048			1372.8		. 3500	
		PA	• •	•		3000	.0147 .0313 .0937	.1276	. 7000	.0058 .0058 .0058 .0058 .0058 .0058			10		.3000	.0133 .0282 .0838
,			MACH			. 2500		.1733	.6750	.0053			2		2300	
7 646-647				- 490.51		.2000	.3279	. 5282	.6500	. 0050 . 0050			.06⊁ ≠		. 2000	. 2868
LARC VDHT	TANK			8		.1590		0000.	.6250	. 0055			8		.1500	
1417.	EXTERNAL			9606	E H/HREF	. 1000		.0000	.6000	. 0055 . 0055 . 0055 . 0050 . 0050 . 0051			7.9096	LE H/HREF	. 1000	
E DATA.	1H17 T8 E				VAK: ABLE	.0800		. 0062	.5750	.0053			•	I VARIABL	. 0800	
ED SOURCE	LARCVDHT647 1		888	.850 MACH	DEPENDENT	.0600		.0071	.5500	. 0053 . 0053 . 0065			900 MACH	DEPENDENT	. 0600	
TABULATED	LARCV		0000	æ.	٥	. 0		. 0082	.5250	0070			•	_	00%	
			XMRP ** YMRP ** ZMRP **	HAW HTC 11		.0200		.0082	.5000	0.000000000000000000000000000000000000			HAW/HT(2)		. 0200	
		NCE DATA	O ż ż		TANK	.0100		.0671	4750	.0063	.9738	7,00.		AL TANK	.0100	
91		REFERENCE	2690.0000 S 474.8000 I 936.7000 :	2.000 a	COCKTERNAL	.0000		.2108	. 4300	.0072	.9345	8000	= 2.000	1) EXTERNAL	0000.	
DATE 16 MAR			SREF # 269 LREF # 47 BREF # 93	,	SECTION (;	איר	PHI .000 .55.000 .00.000 .112.500	157.500 180.000	X/L	PHI -000 -5.000 67.500 90.000 1185.500 157.500	X/L	180.000	RN/L (1)	SECTION (x/L	PH1 65.000 67.500 12.500

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(RPRT:5)			.3500	¥200°.	.0129	. 7500	1700. 2700.	
			.3000		.1138	. 7000	000.000.000.000.000.000.000.000.000.00	
ŗ.			930		0451.	.6750	8 9 0 0	
LARC VOHT 645-647			.2000		.4528	.6500	9900°.	
LARC VDH			.1500		0000.	.6250	0S00°.	
		E H/HREF	. 1000		.0000	.6000	0050 0050 0050 0050 0050 0050 0050 005	
E DATA. H17 TB E		VARIABL	.0800		.0056	.5750	.0047	
TABULATED SOURCE DATA, 1417, LARC LARCYDHT647 1417 TB EXTERNAL TANK	006.	DEPENDENT VARIABLE H/HREF	. 0600		,0064	.5500	2000 2000 2000 2000 2000	
TABULAT	·		0400		¥.00.	.5250	. 3063	
	HAW/HTC 2)		. 2200		¥.00.	. 5000	00000000000000000000000000000000000000	
		IL TANK	60		.0632	.4750	7500. 87.78	. 0042
3 5	₹ 2.000	1 SEXTERNA	0000.		. 1865	0 0 1 1	. 0065 . 0345	. 0047
24°E 16 MAR 76	î.	SECTION (1) EXTERNAL TANK	, ×	144 135 135	60 00 60 00	X		180.000

103	-		000	10-4/608	g G	0004.		6900.	0006	5400 0400 0600 0600 0038 5400		.80974-01		9		
PAGE	6 MAR 76		ហ # #	*		0005.	.0071 .0071 .0055 .000.	6000.	.8500	.0045 .0056 .0051					2007	#900. #900.
		DATA	ALPHA RN/L	£		.3750		.0078	.8000	0004 0004 0004 0004 0004 0004 0004 000		9			. 3750 OC. 2	
	(RPRT16)	PARAMETRIC	6.000 .000	1365.0		.3200	.00 85	.0135	. 7500	.0048 .0047 .0047		1 355			.3500	
		PAR	• •	•		. 3000	.0142 .0304 .0943	. 1293	. 7000	00000000000000000000000000000000000000					3000	.0128 .0273
_			MACH BETA	17 10		.2500		.1773	.6750	. 0047		í	: :		986	
646-647				- 748.71		.2000	.334¢	.5406	.6500	.0046 .0051		ř			.2000	1062
LARC VOHT	TANK			8		.1500		.0000	.6250	. 0056		;	ē.	le.	.1500	
1H17.	EXTERNAL			.9634	E H/HREF	1000		. 0000	.6000	00000000000000000000000000000000000000		,	7.9634	LE H/HREF	. 1000	
DATA.	1H17 TB E)				VARIABLE	0080.		.0057	.5750	. 0051			HACH .	T VARIABL	.0800	
ED SOURCE	LARCVDHT6+7 1		000 2 Z Z Z	850 MACH	DEPENDENT	.0600		.0067	.5500	.0053 .0053 .0053			900 HA	DEPENDENT	.0600	
TABULATED	LARCY		0000	6 2,	۵	00+00		2,007	5253	. 3066					0,00	
			X ARROY B	HABSHTE 10		. 0200		4200	.5000	######################################			HALLING C 23		. S80	
					TANK	.0100		9659	. 4750	8 500.	.9738	00.4	ο	AL ANK	B B B B B	
5				n in	EX*EPNAL	0000.		e c		. 000 000 007 007	348	on 1 C1 C3	₹ 5.00	LIEXTEPWAL	0000	
DATE 16 MAR 76	•				SECTION :	איר	#	, u, c	, , ,	6 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	#/1°	0 1 1 0 4 0 1	PR. L. 17	SECTION 1	X/L	# % # # # # # # # # # # # # # # # # # #

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PAGE	0 0 1))))	0000 1000 1000 1000		
.	.3750	1,000.	2008.	.0040 .0040 .0040 .0037 .0037		
(RPRT16)	.3500	. 6007.	0067.	. 0038 . 0043		
	3000	.1150	.7000	.0043 .0046 .0046 .0046 .0047		
7	ر 100	.1568	.6750	£400°		
TABULATED SOURCE DATA, 1H17, LARC VOHT 646-647 LARCVOHT647 1H17 T8 EXTERNAL TANK	C	0.724.	. 6500	.0046 .0058		
LARC VDH TANK	,	0000.	.6250	. 0051		
1H17. XTERNAL	E H/HREF	0000.	.6000	8+000 9+000 8+000 8+000 6+000		
E DATA. H17 T8 E	. VARIABL	.0052	.5750	9+00.		
BULATED SOURCE DATA, 1H17, LARCVOHT647 1H17 T8 EXTERNAL	.900 DEPENDENT VARIABLE H/HREF	. 0060	.5500	.0048 .0042 .0053		
TABULAT	•	.0068	.5250	. 0059		
	HAW/HT(2)	.0067	.5000	.000. .000. .000. .000. .000. .000.		
	DD HAV	0010.	.4750	. 0052	.9738	.0043
76	= 5.000 !)EXTERNAL	.0000	.4500		.9345	4400.
DATE 16 MAR 76	RN/L (1) = 5.000 H SECTION (1)EXTERNAL TANK	X/L PH1 35.000 157.500 180.000	,,×	PHI .000 45.000 90.000 11.2.500 135.000	X/L	PH1 180.600

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105	^		.000	1+356		. 4250		.0077	.9000	00499 00499 00499 0039 0039			.14356		.4250	
PAGE 1	6 MAR 76		10.	- .		.4000	.0075 .0073 .0076 .0054 .0015	.0016	.8500	.0046 .0065 .0056			#		4000	.0058 .0066 .0065 .0013
	_	DATA	ALPHA RN/L	오		.3750		.0088	.8000	.0049 .0049 .0047 .0047 .0047			유		.3750	
	(RPRT17)	PARAMETR1C	8.000 .000	1434.9		.3500	0800	.0147	. 7500	.0043 .0053			1434.9		.3500	
		PA		10		.3000	.0154 .0316 .1625	.1393	.7000	8400 6400 6400 6400 6400 6400 6400 6400			10		.3000	.0285 .0285
7			MACH BETA			.2500		. 1936	.6750	7,000.			-		.2500	
T 646-647				- 2528.1		.2000	.3848	.6856	.6500	. 0048 . 0072			= 2528		.2000	. 3230
LARC VOHT	TANK			P0		.1500		.0000	.6250	.0063			8		.1500	
1417.	EXTERNAL			8.1058	E H/HREF	. 1000		.0000	.6000	.0057 .0054 .0058 .0054 .0054			8.1058	LE H/HREF	. 1000	
E DATA.	1H17 T8 E			H	VARIABLE	.0800		. 0061	.5750	. 0055			Ħ	T VARIABLE	. 0800	
ED SOURCE	LARCVDHT647 1		0000 IN. 0000 IN. 0000 IN.	850 MACH	DEPENDENT	.0600		. 0068	.5500	. 0032 . 0056 . 0076			900 MACH	DEPENDENT	.0600	
TABULATED	LARCV		888	w.	u	.0400		.0085	.5250	.0072					.0400	
		_	XMRP # YMRP # ZMRP #	HAW/HT(1)		. 0200		. 0077	.5000	.0059 .0064 .0061 .0061 .0057			HAW/HT(2)		.0200	
		REFERENCE DATA	S0.FT.		IL TANK	.0100		.0722	.4750	.0065	.9738	.0058		AL TANK	.0100	
76		REFERE	2690.0000 2 474.8000 1 936.7000 1	= 10.900	1) EXTERNAL	. 0000		.2357	0054	.000 .000 .0087	.9345	450D.	₹ 10.000	1, XTERNAL	.0000	
CATE 16 MAR			SPEF # 269 LPEF # 47 BPEF # 93	~	SECTION (7/X	PHI . 000 45.000 67.500 90.000 135.000	157.500 180.000	X/L	PH1 .000 45.000 67.500 90.000 135.000 157.500	XVL	PH1 180.000	RN/L (1)	SECTION (X/L	PHI .000 45.000 67.500 90.000

DATE : 6 MAR 76	AR 76			TABULA LARC	TABULATED SOURCE DATA, 1H17, LARC LARCVOHT647 1H17 T8 EXTERNAL TANK	CE DATA.	1H17. EXTERNAL	LARC VDHT 646-647	HT 646-6	t 7		(RPR117)	17)	PAGE	105
RN/L ()	RN/L (1) = 10.000		HAW/HT(2)		900										
SECTION	SECTION (1) EXTERNAL TANK	JAL TANK			OEPENDEN	IT VARIAE	DEPENDENT VARIABLE H/HREF	Į.							
×/Ł	. 0000	.0100	. 0200	0040.	. 0600	.0800	. 1000	. 1500	.2000	.2500	.3000	.3500	.3750	4000	, 4250
PH1 135.000												5700.		.0068	
180.000	5405.	. 0645	0630.	.0077	. 0062	.0055	.0000	.0000	.5109	. 1692	. 1230	.0133	.0080	.0014	.0070
X/L	4500	.4753	.5000	. 5250	.5500	.5750	.6000	.6250	.6500	.6750	.7000	.7500	.8000	.8500	.9000
PHI . 000 67.500 90.000 11.2.500 135.000 187.500		6500.	. 00053 . 00053 . 00055 . 00056 . 00056	. 0065	. 0047 . 0051 . 0069	. 0050	900. 900. 900. 900. 9460. 9400.	.0057	£+900°	5400.	0100 0100 0100 0100 1100	9400° 6800°	.0004 .0004 .0004 .0004 .0043 .0043	.0042 .0059	7700 7700 7700 7700 7700 7700 7700
X/L	.9345	.9738													
PH1 180.300	6+0C.	. 3052													

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107	16)		5.000 .100	.19826-01		.4250		₩800.	.9000	. 0072 . 0099 . 0109 . 0126 . 0131			19826-01		.4250	
PAGE	16 MAR		Ti	•		¢000	.0106 .0126 .0139 .0115	.0018	.8500	.00150			н	•	4000	.0112 .0113 .0103
	68	DATA	ALPHA RN/L	오		.3750		.0112	.8000	.0066 .0080 .0103 .0118 .0118			웃		.3750	
	(RPRT18)	PARAMETRIC	8.000 .000	1226.3		.3500	.0139	.0185	.7500	0130 4400.0059			1226.3		.3500	
		4	# # T ~	10		.3000	.0230 .0426 .1137	. 1492	.7000	.0073 .0096 .0115 .0119 .0131			10		.3000	.0204 .0378 .1008
7+			MACH 3ETA	910		.2500		. 1954	.6750	.0125			0		.2500	
17 646-647				± ±		. 2000	.3333	4758	.6500	.0136 .0132			14.91		.2000	.2934
LARC VDHT	TANK			5		.1500		.0000	.6250	8+00.			8		. 1500	
IH17.	EXTERNAL			7.2748	E H/HREF	.1000		.0000	.6000	.0067 .0088 .0094 .0116 .0132 .0133			.2748	E H/HREF	. 1000	
CE DATA.	1H17 TB			H	VARIABLE	.0800		.0135	.5750	.0134			H 1	VARIABLE	. 0800	
TABULATED SOURCE DATA	LARCVDHT647		0000 IN. 00000 IN. 0000 IN.	850 MACH	DEPENDENT	. 0600		.0130	.5500	.0132 .0135			900 MACH	DEPENDENT	.0600	,
TABULA	LARC		000	~. #	-	0,040		.0164	. 5250	7,000.			u;	٥	.0400	
		∢	XMRP YMRP ZMRP URR	HAW/HT(1)		. 0200		.0152	.5000	00000000000000000000000000000000000000			HAW/HT(2)		. 0200	
		REFERENCE DATA	SQ.FT. IN. IN.	. 100 HA	AL TANK	.0100		.0857	.4750	.0133	.9738	. 0041		il TANK	.0100	
37.5		REFER	2690.0000 474.8000 936.7000		I JEXTERNAL	.0000		.2315	. 4500	. 0059 . 0069	.9345	. 0052	.100	1) EXTERNAL	. 0000	
DATE 15 MAR			2 4 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	17/16	SECTION (X/L	## ###################################	(.)	X/L		X/L	PH1 180.000	RN/L (1)	SECTION (1	X/L	PHI .033 45.000 67.500 90.000

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PAGE :(3750 . +000	.00119 .0016	0	m m 10		
118)	750		.8500	. 5000. 85000. 854000.		
Ξ	ķ	0010.	.8000	.0059 .0059 .0105 .0105 .0105 .0105		
(RPRT18)	,3500	.0164	.7500	.0116 .0040 .0058		
	.3000	. 1321	.7000	.0065 .0086 .0102 .0106 .0117		
ţ.	. 2500	.1728	.6750	.01110		
LARC VDHT 646-647 TANK	.2000	.4171	.6500	.0038		
	.1500	0000.	.6250	.0043		
1H17, EXTERNAL	OEPENDENT VARIABLE H/HREF .0600 .0800 .1000	. 0000	.6000	.0060 .0073 .008+ .0103 .0113		
CE DATA,	T VARIAB .0800	.0120	.5750	9110.		
TABULATED SOURCE DATA, 1417, LARCVDHT647 1417 T8 EXTERNAL .900	OEPENDEN . 0600	3110.	.5500	.0117 .0120 .7400.		
F H	.0400	9+10.	.5250	6900.		
HAW/HT(2)	. 3200	.0144	.5000	.0079 .010. .0115 .0116 .0168		
. 100 HA	.0100	.0761	4753	.0118	. 9738	. 0036
* 76	.n (1)EXTERNAL TANK .0000 .0100	. 2045	0094.	1900.	.9305	9400.
	SECT.ON C	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	7/X	T who who o	X/L	180.000

109	16)		ອ. 000 ອ. 000	.81670-01		.4250		.0067	.9000	. 0069 . 0091 . 0118 . 0137 . 0126			.81670-01		.4250	
PAGE	16 MAR 7		ព្រ	,		4000	.0093 .0113 .0122 .0021	4100.	.8500	. 0146 . 0048 . 0028			#		4000	4800. 5010. 5010. 6100.
	J	DATA	ALPHA RN/L	皇		.3750		9600.	.8000	0058 0079 0105 0120 0125 0141			웃		.3750	
	(RPRT19)	PARAMETR1C	8.000 .000	1387.0		.3500	0118	.0142	.7500	.0132 .0033			1387.0		.3500	
		PA	н и	10		.3000	. 0222 . 0426 . 1270	. 1686	. 7000	.0077 .0097 .0152 .0118			T0		.3000	.0199 .0382 .1129
7			MACH BETA			. 2500		.2165	.6750	.0118					.2500	
T 646-647				= 715.74		.2000	.3686	S+08	.6500	.0135 .0136 .005			= 715.74		.2000	.3177
LARC VDHT	TANK			0		. 1500		. 0000	.6250	. 0041			8		.1500	
IH17,	EXTERNAL			7.9577	E H/HREF	. 1000		.0000	.6000	.0068 .0099 .0167 .0130 .0133			7.9577	E H/HREF	0001.	
E DATA,	18				VARIABLE	.0800		.0139	.5750	7510.				. VARIABLE	. 0800	
ED SOURCE	LARCVOHT647 1H17		.0000 .0000 IN.	850 MACH	DEPENDENT	.0600		.0150	.5500	.0132 .0135			900 MACH	DEPENDENT	. 0600	
TABULATED	LARC		888	n w	J	.0400		.0155	.5250	¥900·			o ;	J	.0400	
		∢	XMRP YMRP ZMRP	HAM/HT(1)		. 0200		.0140	.5000	00000000000000000000000000000000000000			HAW/HT(2)		. 0230	
		FERENCE DATA	SO.FT.	000 HA	AL TANK	.0100		8060.	.4750	9410.	.9738	. 0022	.000 HAI	AL TANK	.0100	
76		REFER	.0000 .7000 .0059	5.9	1)EXTERNAL	0000.		. 2527	.4500	• 8 8 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	.9345	9+20.	5.0	DEXTERNAL	.0000	
DATE 16 MAR			SAEF = 2690 DEF = 474 BOEF = 936 SCALE = 936	(; , , , , , d	SECTION :	7./x) (1) (1) (1) (1) (1)	.'. x	# # # # # # # # # # # # # # # # # # #	X/L	PH: 180.030	RN/L : 13	SECTION (X/L	1 00000 000000 000000000000000000000000

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34'E 16 448 76	AP 76			TABUL	ATED SOUR	TABULATED SOURCE DATA, IHI7, LARC VDHT 646-647	IHI 7.	LARC VD	HT 646-6	ţ.				PAGE
				LAR	CVCHT647	LARCVCHIG47 1417 18 EXTERNAL TANK	EXTERNAL	TANK				(RPRT19)	(6)	
日 :1 る		5.000 F	HAW/HT(2)	#	. 900									
SECTION (I JEXTE	SECTION (1) EXTERNAL TANK	~		DEPENDEN	DEPENDENT VARIABLE H/HREF	LE H/HRE	L						
×	. 3000	.0103	. 0200	0010.	.0600	. 0800	. 1000	.1500	. 2000	.2500	.3000	.3500	.3750	0004
9H1 :35.000 :57.500												.0106		.0120
180.003	. 2213	0180.	.0126	.0140	.0135	.0125	0000.	.0000	.4563	1904	1492	.0127	.0087	. 00129 5100.
X/L	0004	. 4750	.5000	. 5250	.5500	.5750	.6000	.6250	.6500	.6750	.7000	.7500	.8000	.8500
PH: #5000 #7000 #7000 11.2000 11.2000 12.2000 13.2000 13.2000 13.2000 13.2000 14.2000 PH: PH:	######################################	. 0128 . 9738 . 0500	5700. 5000. 5000. 6010. 6510. 6510.	. 005 8	.0119 .0129 .0039	. 610.	000.000.000.000.000.000.000.000.000.00	.0037	-510. -510. -5003	9010	0000 0000 00100 00107 00107 0007 0007	90030 00030 00030	000-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	.0131 .0043 .0026

16 MAR 76 REFERENCE DATA	TABUL	TABULATED SOURCE LARCVDHT647 1H	CE DATA. 11	HI7. EXTER	LARC VDHT	T 645-647		PARA	(RPRT20 PARAMETRIC	F) (16 DATA	AGE MAR 7	6)
SQ.FT. X	XMRP = YMRP = ZMRP = 1	.0000 .0000 .0000					MACH BETA	œ	000	ALPHA RN/L		100
.130 HAW/HT	HT: 13 #	.850 MA	MACH	7.2738	8	14.860	ō	•	1199.0	웃	•	. 18500-01
JEXTERNAL TANK		DEPEL.DENT	T VARIABL	E H/HREF								
. 0010	0200 . 0400	. 0600	.0800	.1000	.1500	. 2000 .	2500 .3000	•	3500	3750	.4000	.4250
						.2878	.014 6 7750.	•	1 600		.0099 -0000 -0000 -00018 -0008	
. 0494	0600. 9800	1700.	1,00.	.0000	. 0000	1. 6844.	549 .111		0143	9800	8100.	0600.
. 4750	5000 .5250	.5500	.5750	.6000	.6250	.9. 0059.	6750 .7000	•	7500	8000	.8500	0006.
	0075 0093 0073 0072 0076 0059 0078	. 0055 . 0055 . 0077	0700.	.0072 .0070 .0063 .0058 .0075 .0063	. 0085		.0058 .0049 .0061 .0057 .500. .7200. .7200.	• • •	0055 0072 0066	.0065 .0055 .0058 .0058 .0058	.0056 .0060 .0059	.0056 .0056 .0055 .0055 .0054
.9738												
. 0050												
.100 HAW/HT	/HT: ≥) =	.900 H	MACH	7.2738	8	= 14.850	5	•	1199.0	유		. 18500-0
11EXTERNAL TANK		DEPENDENT	NT VARIABLE	RE HIMEF	L.							
0010.	0000 .0400	0090.	. 0800	. 1000	.1500	5. 0005.	2500 .30	3000	.3500	.3750	\$000 * .	.4250
						. 2536	2.00	.0129 .0246 .0595			.0089 .0069 .0064 .0057	

CATE 16 MA	MAR 76			TABULA	TED SOUR	CE DATA.	1417.	TABULATED SOURCE DATA, 1H17, LARC VDHT 6+6-6+7	1T 646-64	Ĺ				PAGE	112
				LARC	VDHT647	1H17 T8+	X23 EXTE	LARCVDHT647 1H17 T8+X23 EXTERNAL TANK				(RPRT20)	(0;		
RN/L C 13		. 100 HA	HAW/HT(2)	H	. 900										
SECTION (SECTION (1) EXTERNAL TANK	VAL TANK			DEPENDEN	T VARIAB	DEPENDENT VARIABLE H/HREF	i.							
X/L	.0000	.0100	. 0200	.0400	.0600	.0800	. 1030	.1500	.2000	.2500	.3000	.3500	. 3750	000h.	DC24.
PH1 135,000 157,500								,	9	į	0000	P800.	7200	.0077 .0075	.080
180 600	1648	.3438	.007	0800.	.0063	.0063	0000	0000.	. 3938	1/81.	. U363				
X/L	LE00	.4750	.5000	. 5250	.5500	.5750	.6000	.6250	.6500	.6750	.7000	.7500	. 8000	00CB.	9008.
PH: 000 45.000 95.0000 95.000 95.000 95.000 95.000 95.000 95.000 95.000 95.000 95.000 95.000 95.000 95.000 95.0000	. 00. . 0078	. 50073		7200.	6900 6900 6900	. 0062	4800. 6800. 6800. 6800. 6800. 8800.	.0076	. 0045 . 0049 . 0655	.0051	.0051 .0054 .0054 .0057 .0057	6400° 6400°	.0057 .0059 .0057 .0052 .0058 .0058	.0049 .0053 .0052	0000. 0000. 0000. 0000. 0000. 0000. 0000.
, ×	3456.	.9738								'	1				
PH1 :80.000	8,00.	. 0045													

PAGE 113	16 HAR 76)		. 500	.30804-01		0004.	.0082 .0074 .0054 .0018	6700. 7100.	.8500 .9000	. 00051 . 00051 . 00052 . 00057 . 00059 . 00059 . 00059			10-50808. * 0		,4000	.0073 .0073 .0056 .0057
		DATA	ALPHA RN/L	오		.3750		.0088	.8000	. 0050 . 0058 . 0059 . 0059 . 0059 . 0055			2		.3750	
	(RPRT2	PARAMETRIC	8.000 .000	1238.2		.3500	.0087	.0139	.7500	. 0052 . 0060 . 0059			1238.2		.3500	
		PA	::	1 0	`	.3000	.0157 .0348 .0682	1090	.7000	.0065 .0055 .0050 .0057 .0057			10		.3000	. 0140 . 0310 . 0608
7			MACH BETA	. 13		.2500		.1643	.6750	9900.			. 13		.2500	
IT 646-647				109.		. 2000	¥8 i 8.	.5010	.6500	.0055 .0055 .005			109		.2009	.2758
LARC VDHT	NAL TANK			6		. 1500		. 0000	.6250	1700.			5	Į.	. 1500	
1417.	(23 EXTERNAL			7.6931	E H/HREF	. 1000		.0000	.6000	.0058 .0058 .0058 .0058 .0053			7.6931	RE HIME	. 1000	
E DATA,	1H17 T8+X23			•	T VARIABLE	.0800		.0062	.5750	.0067			MACH -	IT VARIABL	.0800	
ED SOURCE	LARCVOHT647 1		0000 IN.	B50 MACH	DEPENDENT	.0600		.0070	.5500	. 0057 . 0060 . 2000			.900 H	JEPENDENT	.0600	
TABULATED	LARC		999			0400		.0101	5250	2700.					.0400	
			XMRP .	HAW/HTC 13		. 0200		.0088	.5000	.0072 .0076 .0069 .0066 .0066			HAW/HT(2)		.0200	
		REFERENCE DATA	0 X X		L TANK	.0100		.0734	.4750	9 700 .	.9738	.0051	6	AL TANK	.0100	
5		DEC ERE	2690.0000 SQ 474.8000 IN 936.7000 IN	.500	1) EXTERNAL	. 0000		0861	. 4500	• • • • • • • • • • • • • • • • • • •	.9345	.0053	.50	1) EXTERNAL	. 0000	
DATE 16 HAR			SREF = 266 LPEF = 47		SECTION (X/L	PH1 . 000 45. 000 67. 500 90. 000 112. 500	157.500	X/L	PH1 	x/r	PH1 180.000	RN/L (1)	SECTION (X/L	PH1 - 500 - 45.000 67.500 90.000 116.500

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24TE 16 MAR 76	÷ 76			TABULA	ABULATED SOURCE CATA, 1H17, LARC VDHT 646-647	E CATA.	1417.	LARC VD	47 646-6 [;]	ţ,		(101000)	<u>.</u>	PAGE	<u>*</u>
				LAR	LARCVDHT647 1H17 T8+X23 EXTERNAL TANK	1H17 T8+	x23 EXTER	ANAL TAN	v				ì		
RV/L (1)		.500 HA	HAH/HT(2)		.900										
SECTION : 1)EXTERNAL TANK	1) EXTERN	IAL TANK			DEPENDENT VARIABLE H/HREF	T VARIAB	LE H/HREI	lı.						,	i i
7.78	0000.	.0100	. 5200	00+0	. 5600	0080.	. 1000	. 1500	. 2000	. 2500	.3000	.3500	. 3750	0004	00 y .
1 4												.0078		5,00.	
	.1751	.0653	.0078	0600.	. 0063	.0055	. 0000	0000.	.+369	. 1456	. 0968	4210.	.0078	.0015	6900.
X	4500	.4750	0 0 0 0 0	.5250	.5500	.5750	.6000	. 5250	.6500	.6750	. 7000	. 7500	.8000	. 8500	0006.
	. 50571 2080	0700.	+ m - m m m m m m m m m m m m m m m m m	. 0067	.0050 .0050 .0076	. 0060	.0062 .0061 .0059 .0056 .0056 .0047	.0064	7400. 6400. 8800.	.0059	.0058 .0058 .0053 .0053 .0053	7400. 7600. 7600.	.0053 .0053 .0053 .0053 .0053 .0053	. 0059 . 0059	0046 0040 0040 00037 0037 0043
,	.93+5	.9738													
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511 39	MAF 76)		0000.€	- 65937-01		00 4250	86-1860 <i>8</i>	0600. 71	0006. 00	. 0072 . 0069 . 0053 . 0056 67 . 0056 68 . 0060			.65937-01		0524. 00	0088 0091 0075 0071
PAGE	E			•		4000		58	.8500	. 0067 . 0067					£000	.0098 .0091 .0075 .0071
	(25	C DATA	AL PHA RN/L	¥		.3750		.0109	.8000	1,000 1,000			¥		.3750	
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PAGE 118

(RPRT23) LARCYDHT647 1H17 T8+X23 EXTERNAL TANK . 900 RN/L (1) = 5.000 HAW/HT(2) = DATE 15 MAR 76

SECTION (I)EXTERNAL TANK SPERIOENT VARIABLE H/HREF		.4250	1600.	0006.	.000. .000. .000. .000. .000. .000.		
CTION (I)EXTERNAL TANK CTION (I)EXTERNAL TANK COPENDENT VARIABLE H/HREF CTION (C		0004	.0087 .0086 .0017	.8500	.0067 .0070		
CTION (DEXTERNAL TANK		.3750	.0101	.8000	.0078 .0075 .0075 .0055 .0064 .0066		
CTION (1)EXTERNAL TANK COMMINISTER OF THE PAYMENT		.3500	.0103	.7500	.0067 .0073		
CTION (1)EXTERNAL TANK .0000 .0100 .0200 .0400 .0600 .0800 .1000 1500 .2000 HI 5.000 .4500 .4750 .5000 .5256 .5500 .5750 .6000 .0000 .4600 .4500 .4750 .5000 .5256 .5500 .5750 .6000 .0000 .4600 .0004 .0004 .0005 .000		.3000	.0848	.7000	.0070 .000. .000. .000. .000. .000.		
CTION (1)EXTERNAL TANK . 0000 . 0100 . C200 . 0400 . 0600 . 1000 1500 . 15500 . 1000 1500 . 15500 . 1884 . 1107 . 0110 . 0099 . 0079 . 0071 . 0000 . 0000 . 0000 . 19500 . 1884 . 1107 . 0110 . 0099 . 0079 . 0071 . 0000 . 0000 . 1910 . 0098 . 0079 . 0071 . 0008 . 00071 . 0008 . 0008 . 0071 . 0008 . 0071 . 0008 . 0071 . 0008 . 0071 . 0008 . 0071 . 0075 .		.2500	. 1538	.6750	. 0066		
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.4250 . 000 10. 000 .9000 .0183 .0186 .0186 .0180 .0185 .14390 .0161 P40E 119 .4250 5 . 14390 F 16 44R 4000 .0140 .0132 .0156 .0128 .0033 .0155 .6553 .0192 .0192 C004. .0125 .0119 .0116 .0116 ALPHA RN/L 임 PARAMETRIC DATA .3750 .0150 .8000 .0197 .0206 .0206 .0190 .0192 .0195 皇 (RPRT24) .3750 8.000 .000 1454.3 .3500 1454.3 .0145 .0271 .7500 .0217 .0219 .0219 .3500 .3000 .0331 .0798 .1563 .1084 . 7000 .0194 .0203 .0213 .0201 .0201 .3000 5 MACH 5 . 2500 . 1834 .6750 .0215 TABULATED SOURCE SATA, 1H17, LARC VOHT 646-647 2547.7 . 2500 2547.7 .2000 3885 .6903 .6500 .0206 .0211 .0228 .2000 LARCVDHIG47 1H17 T8+X23 EXTERNAL TANK .1500 .0000 8 .6250 . 0223 .1500 8 DEPENDENT VARIABLE H/HREF = 8.1056 DEPENDENT VARIABLE H/HREF . 1000 .0000 .6000 .0225 .0191 .0172 .0204 .0204 .0206 .0206 **■ 8**.1056 .1000 . 0800 .0176 .5750 .0204 . 0800 .850 MACH .900 MACH <u>zzz</u> .0600 .0170 .5500 00000 .0201 .0199 .0196 .0600 .0400 .0170 . 5250 .0193 .0400 HAW/HT(1) = . 0200 XMRP YMRP ZMRP HAW/HT(2) .0157 .5000 .0152 .0147 .0186 .0189 .0185 .0200 REFERENCE DATA 2690.0000 SQ.FT. 474.8000 IN. 936.7000 IN. SECTION (1) EXTERNAL TANK .0100 .4750 .e17 SECTION (1) EXTERNAL TANK .0170 .9738 .0183 .0100 PN/L (1) = 10.000 RN/L (1) ≠ 10.000 .0000 .2357 .4500 .0185 .0124 .0175 . 9345 .0000 45.000 67.500 93.000 112.500 135.000 187.500 PH1 180.030 .550 67.590 90.590 112.500 135.000 157.500 .300 45.300 67.590 90.000 Ï X/L

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					LARC	/DHT647	1H17 TB	LARCVOHTG47 1417 T8+X23 EXTERNAL TANK	PNA! TA	¥				į	1	ָ בַּי	
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		DATA	ALPHA RN/L	오				웆				
	(RPRM01)	PARAMETRIC DATA	000.8	1236.7				1236.7				
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			MACH BETA	5				10				
6-647				23.805				23.805				
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ARC VE	N NG			9		٠		8				
TABULATED SOURCE DATA, 1H17, LARC VDHT 646-647	LARCYDHT646 1H17 01+TB ORBITER WING			7.3731	H/HREF			7.3731	H/HREF			
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JURCE D	+6 1H17		ZZZ	MACH	DEPENDENT VARIABLE H/HREF			MACH	DEPENDENT VARIABLE H/HREF			
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PAGE	16 MAR 76			H												
	~	DATA	ALPHA RN/L	오							오					
	(RPRW02)	PARAMETRIC DATA	8.000 .000	1270.3							1270.3					
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46-647				117.18							117.18					
± 6																
LARC VDHT 646-647	MING			8							8					
1H17.	LARCVOHT646 1H;7 01+TB ORBITER WING			7.7041	DEPENDENT VARIABLE H/HREF						7.7041	DEPENDENT VARIABLE H/HREF				
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		REFERENCE DATA	50.FT.	C)	E ING	.6000	.0064 .0041	.0300	.0293 .0293 .0271	.0187 5010.	500 HA	9N1m &	.6300	.0058	. 0238 . 0238 . 0252 . 0193	 24.00 24.00
3 75		REFER	2690.0000 474.8000 936.7000	. 50	1 1 ORB 1 TER	0004.	1900	00.00.00.00.00.00.00.00.00.00.00.00.00.	.050. .0168 .016. .0161	.0103	in.	1) ORB1 TER	#C00	.0054	00188 01186 01186 01186 0186	8700.
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16 MAR 76			TABULATED SOURCE DATA, 1417. LARC VDHT 646-647 LARCVDHT646 1417 01+T8 ORBITER WING	: VDHT 646-647		GR.	(RPRW03)	PAGE 12	: 123 176)
REFERENCE DATA	ICE DAT	⋖				PARAMET	PARAMETRIC DATA		
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. 0082	พ เก								
1) = 2.000		HAW/HT(2) -	.900 MACH = 7.9115 PO	97.82	ō	+ 1379.4		· 오	.67283-01
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DATE 5 4AR 76				TABULATED SOURCE DATA, LARCVDHTG46 1H17 O1+1	1417, 18 ORBITE	RC VOHT	LARC VOHT 646-647 R WING			(RPRM04)	(+0	PAGE 16 MAR	124
	REFERENCE	DATA	_						_	PARAMETRIC DATA	C DATA		
2000 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	0000 SQ.F 8000 IN. 7000 IN.	. :	XMRP # CMPX					MACH BETA	• •	8.000 .000	ALPHA RN/L		5.000
H ()	5.000	HAH	HAW/HT(1)	# .850 MACH	= 7.9609	0d	735.96	2	-	1395.9	9	•	10-2080 B.
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和 5	•) 8											

DATE 16 MAR	276			TABULATED SOURCE DATA, 1H17, LARC VOHT 646-647	SOURCE	DATA.	1H17. 1	LARC VD	17 646-6	34.7					PAGE	125
				LARCVD	T646 1H	17 01+18	LARCVDHT646 1H17 01+TB ORBITER WING	MING WING					(RPRM05)		(16 MAR 76	16 1
	BEFER.	REFERENCE DATA	Z.									PAR	PARAMETRIC DATA	DATA		
SPEF # 250 LPEF # 45 BDEF # 93 SCALE # 93	30.0300 74.8000 36.7000	50.FT.	XMRP YMRP 2MRP #	.0000 IN. .0000 IN.	z z ż					2.00	MACH		8.000 .000	ALPHA RN/L	u 11	.000
11 7/14	₹ 10.0	9	HAW/HT(1) =	.850	MACH		8.1061	8	- 253	2535.6	5		1448.2	오	•	.14397
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ン/× で1・ でいる。 でなら。	.0356	9900.														
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008. 008. 008.	9110	. 0219 . 0211														
RN/L 11	0.01	900 HA	HAW/HT(2) =	.900	MACH	œ ø	8.1061	8	• 253	2535.6	70	•	1448.2	£	•	.14397
SECTION (1 1 0 R B 1 TER	B WING		0EP	ENDENT V	/ARIABLE	DEPENDENT VARIABLE H/HREF									
2Y/B	0004.	.6000	.8000													
x/C .175 .200 .255	0650	. 0095 . 0060														
M. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	. 0253 . 0253 . 0256 . 0250 . 0207	.0317 .0420 .0318 .0286	.0099 .0672 .0587 .0508													
. 900 . 900	.0105	.0325														

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PAGE 126	06) (16 MAR 76)	C DATA	ALPHA = -5.000 RN/L = .100		HO * 19473-01						1 HO = 19473-01					
	(RPRW06)	PARAMETRIC DATA	8.000		= 1230.1						= 1230.1					
			MACH	<u>.</u>	2						5					
LARC VDHT 646-647					= 23.805						= 23.805					
ABULATED SOURCE DATA, 1417, LARC VD	LARCVOHT646 1417 01+T8 ORBITER MING		.0000 IN.	.0000 . .0000 . .0000 .	.850 MACH = 7.3731 PO	DEPENDENT VARIABLE HZHREF					.900 MACH = 7.3731 PO	DEPENDENT VARIABLE H/HREF				
TABU	ΓÞ	4	XMRP =	YMRP ZMRP n	HAW/HTC 1) =		. 8000		.0101 .0083 .0508 .0449	8 5	HAW/HT(2) =		.8000		. 0000 . 0000 . 0000 . 0000 . 0000	
		4. 40 FOW		<u>; </u>	00 YA	on in	. BCCB.	3068 . 0052	9000	2000 2000 2000 2000 2000 2000 2000 200	ī ::	9	.6000	0000.	03504 0304 02748 0174 0174	ù D
r D		SEE E BENCE		6.55 6.55 6.55 6.55 6.55 6.55 6.55 6.55	- 1(: SPB: TER) () 3	ز			-: "	: CP817E	000 1	()	00000000000000000000000000000000000000	3000.
7 A P			u	# # # 	.1 : 7/4d	SECTION .	87.7B			က်၊ ကြောက္ဆ ဂြင္လာ ဂြင္လာ	176	SEC1:03-	2 ^/B	ທິດທ ເວດທີ່ ເວດທີ່ ເວດທີ່ ເວດທີ່	ທ່ພລ ^າ ພຫຼາ ພິດຕິດດດອີ ດິດຕິດດອີ	ກູດ. ບໍ່ດີ

PAGE 127	(RPRW07) (16 MAR 76)	PARAMETRIC DATA	MACH . 8.000 ALPHA5.000 BETA000 RN/L . 5.000	10-395.0 HO = 0.95-01				TO = 1396.0 HO = 0.195-01			
TABULATED SOURCE DATA, 1417, LARC VDHT 646-647	LARCVOHT646 1H17 01+;@ ORBITER WING		.0000 .0000 	.85c M4CH = 7.9615 PO = 737.51				.900 MACH = 7.9615 PO = 737.51	DEPENDENT VARIABLE HIHREF		
247: 15 MAR 75		REFERENCE DATA	SPEF # 2690,0000 SQ.FT. XMRP # 175 # 474,8000 IN. YMRP # 555.7000 IN. ZMPP # 555.7000 IN. ZMPP # 555.25	6.72 11 = 5.000 HAW/HT(1) =	SECTION (1) ORBITER MING	8/YS	7.75 - 200 - 200 - 200 - 200 - 200 - 200 - 300 - 3	PN/L 1) # 5.000 HAW/HT(2) #	SECTION (110RBITER MING	2Y/8 .4000 .6000 .8000	7/5 -175 -206 -206 -207 -208 -300 -

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CATE 16 MAR	ų. B			7.	ABULA TEC	SOURCE	DATA	TABULATED SOURCE DATA, 1H17,	LARC VDHT 646-647	0H1 6	6-647					•	PAGE	53
					LARCVDH	1645 14	117 01	LARCVDHT645 1H17 01+T8+X23 ORBITER WING	RB1 TER	200				RPR	(RPRM08)	(16 MAR		ι Φ
	REFER	REFERENCE DATA	*										_	PARAMETRIC	NC DATA	•		
SPEF = 2690.(PEF = 474.E BPEF = 936.7		L C - z S	* > V	N N N	NI 00000	<u>z z z</u>						MACH BE TA		8.000 .000	ALPHA RN/L	H. H		0 0 00 00
F	11	1 00	HAM/HT:	• ::	.853	HACH	•	7.4044	g	•	29.775	5	•	= 1231.5	rs	9		30853-01
SECTION (1)	13048:75	07.77 a			250	ENDENT	VARIA	DEPENDENT VARIABLE H/HREF										
21/8	0634.	.6000	.8000	O											•			
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PN/L D .		F 03	HAW/HT	• 2	. 900	MACH		7.4044	8	•	29.775	5	•	1231.5		유	•	.30653-01
SECTION (1)	0.04817EP	Ω 2 3 α			OFB	ENDENT	VARIA	DEPENDENT VARIABLE H/HREF										
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x,c 175 205 209	•	. 0085 . 0035																
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PAGE 129	16 HAR 76)		0 C) 0 L) 0 L)	- 30958-01							.30968-01					
_	_	DATA	ALPHA -	9							£					
	(RPR:409)	PARAMETRIC	9.0 00 .000	1269.4							1269.4					
		ā									•					
			MACH BETA	10							5					
46-647				108.93							108.93					
£ 0	I NG			11							•					
LARC VE	BITER ,			9							8					
TABULATED SOURCE DATA, IH17, LARC VOHT 646-647	LARCVOHT645 1H17 01+T8+X23 ORBITER WING			- 7.6928	DEPENDENT VARIABLE H/HREF						■ 7.6928	DEPENDENT VARIABLE H/HREF				
OURCE	46 1H		z z ż	MACH	DENT .						HACH	ENT \				
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		REFERENCE DATA	50.FT.	500 H	B HING	.6000	0007 004 000	. 0256 . 0319 . 0360	9880. 98910. 8810.		500 HA	8 x 116	.6000	.0071 8200	0.000 0.00 0.00 0.00 0.00 0.00 0.00 0.	95.12
R 75		HEFE!	2690.0000 474.8000 936.7000		13 ORB 17ER	.4000	. 0031	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0		. 0090	u !	110PB17ER	c004.	9 3 0 0	10000000000000000000000000000000000000	
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. 3. 47 . 9. 3. 70	*ABWLATED SOURCE DATA, 1417, LARC VOHT 646-647	PAGE 130
	LARCVELT645 1H17 01+T8+X23 ORB:TER WING	(RPRW10) (15 MAR 76)
REFERENCE DA'A		PARAMETRIC DATA
5957 x 2690 0000 50.FT. XMAP m LAST m 474.6000 [N. VMP m BAST m 936 000 [N. ZMAP m 504.5 m	.0000 IN	■ 8.000 ALPHA ■ .000 ■ .000 RW/L ■ 2.000
# CO B COO # - I - I - I - I - I - I - I - I - I -	.8E3 MACH = 7.9104 P0 = 493.62 T0	* 1339.3 HO * .66755-01
9N:M 631.880:: - NO:1035	DEPENDENT VARIABLE HIMPEF	
0008. 0008. 0004. 8 vs		
600 000 000 000 000 000 000 000 000 000		
BANCO LAWATT COOK BY THE COOK	.900 ** 493.62 TO	. 1339.3 HO 66755-01
SKIM #31:580:1 / NO:1038	DEPENDENT VARIABLE HUMREF	
27.8 4300 .E00C .B000		

16-647 PAGE 131	(RPRW11) (16 MAR 76)	PARAMETRIC DATA	MACH = 8.000 ALPHA = .000 BETA = .000 RN/L = 5.000	723.36 10 * 1276 ± 01 35.153.						•	13/6-01 H HO = 79966-01				
TABULATED SOURCE DATA, 1417, LARC VDHT 646-647	LAPCVDHT646 IHI7 01+18+X23 ORBITER WING		.0000 .0000	850 MACH * 7.9591 PO *	14 13 14					1000 C	ADDRESS I BELGEN INSUN				
DATE 16 MAR 16		REFERENCE DATA	SPET = 2690.000.50.FT. XMPP = 1980.000 1N YMPP = 1980.7000 1N ZMPP = 50.0059	8. 1. 1. 1. 5.000 #AB/LT (1. #	SECTION (1) ORB; TER AING	27.8 . 6000 . 600 . 8.YS	ó	V 1000	0179 . 0259 . 0489 . 04	h	SECT. DA (1) ORBITER MING	24/8 .4000 .6000 .8000	č	######################################	a. 9800.

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				TABULATED SOURCE DATA, 1H17, LARC VOHT 646-547				PAGE 132	
				LARCVOHT6+6 1H17 01+T8+X23 ORBITER WING		(U.Mada)		35 844 35 C	
	REFE	REFERENCE DATA	ıTA			0 1 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2			
0.00 C 0.00 C 0.	2690.0000 474.8300 936.7030		# # # a. a. a. a. X. X. X. X. X.	.0000 1%. .0000 . .NI 0000 .	MACH BETA	B.000 ALPH.	ALPHA RN/L	.000	
1.7 1.7Nd		000	HAW/HT(1) H		;				
SECTION ((1) ORBIT	EP WING		NOENT VARIARIF HYHRE	2	1430.1	오	= .1+365	
27/8	, 400a	.6003	.8000						
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PN/L (1)	<u></u>	AH 000.	HAW/HT(2) =	.900 MACH = 8.1063 PO = 2541 3	Ş				
SECTION (:) CRB: TEP	SNIW G				1.004	Ę	. 14365	
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××C 175 175 175 175	7,600	.0086							
			0.0148 0.033 0.0440 0.0450						
. 900 000	5510.	0184							

133		000		. 19145-01						i 1	10-64181.						
PAGE		н	u														
	DATA	ALPHA 3		우	ť					!	오						
(RPRW25)	PARAMETRIC DATA	8.000	000.	1251.6						ı	1251.6						
	PAR																
		MACH		0							0						
346-647				32.700							32.700						
/DHT 6											•						
FR WIT				g							8						
ABULATED SOURCE DATA, IH17, LARC VDHT 646-647 LARCVDHT646 IH17 01+X23 ORBITER WING				7.4713	DEPENDENT VARTABLE HIHREF						7.4713	DEPENDENT VARIABLE H/HREF					
E DATA.				И	r VARIA						MACH =	T VARIA					
SOURC		2	zż	MACH	ENDEN							ENDEN					
BULATED LARCVDH1			0000	.850	DEPI						. 900	OEP					
4 ↑			YMRP = ZMRP =	HAW/HT(1) =		.8000		.0165 .0096 .0520	.0394 .0394		HAW/HT(2) =		.8000		. 0147 . 0085 . 0464 . 0406		
	CNCE DATA	, i	: izz	100 HA	e ing	.6000	91:0.	.0318	. 029. . 0264 . 0264		8	B WING	.6000	.0106	.0390 .0390 .0307 .0265	0193	
76	REFERENCE		936.7000 936.7000	17	1 1 0 PB 1 TER	4000	;	0700. 0750. 0750.	.0228 .0185 .0156	.0133	- :	1) DRBITER WING	4000	. 0062	. 0196 . 0196 . 0235 . 0203	0.10	.0119
DATE 16 MAR			88867 8867 800 800 800 800 800 800 800 800 800 80	1/20	SECTION (2478	ا/× 75: . 2005 .	ស្តីស្តី ស្តីស្តីស្តី ស្តីស្តីស្តី		1 C) 0 O)		SECTION (24/8	X/C 175 005.	0000000000000000000000000000000000000	. 608. 008. 7.	

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ABULATED SOURCE DATA, 1417, LARC VDHT 646-647	LARCVOHT646 1H17 01+X23 ORBITER WING (RPRW26) (16 MAR 76)	PARAMETRIC DATA	10 IN. BETA = 6.000 ALPHA = .000 O IN. BETA = .000 BN/L = .500 O IN.	.0 MACH = 7.6953 PO = 110.64 TO = 1280.2 HO = .31029-01	DEPENDENT VARIABLE H. WEF					.0 MACH = 7.6953 PO = 110.64 TO = 1280.2 H0 = .31029-01	DEPENDENT VARIABLE H/HREF					
TABULATED SOL	LARCVDHT646		00000	1) = .850	DEPENDE	8000		1142 1102 1561 1502		006. = (5)	DEPENDE	8000		0127 0092 0502 0448 0379		
76		REFERENCE DATA	10.0000 SQ.FT. XMRP 14.8000 IN. YMRP 16.7000 IN. ZMRP	.50C HAW/HT(110RBITER WING	. HOCO . GOOD.	9200. 8200.	0.2552 0.2557 0.0557 0.0550 0.0550 0.0550 0.0550 0.0550	126 . 022 1018 175	.500 HAW/HI	1) OPBITER WING	. 4000 . 6000 . 80	9600. 2500.	0257 . C315 . 0235 . 0239 . 0416 . 0313 . 01813 . 01813 . 0181	145 . 025 112 . 020	
DATE .6 MAR			SPEF # 2690.8	ENVE (1) =	SECTION ()	2Y/B	רי. מקני. מקני. מקקי.		ი. ი.დ. ი.დ. ი.დ.	RN/L - 1) =	SECTION : 1	27/8	7/× 1.75. 2009.	0, w. 4, tu. 0. 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0	. 800	

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047E :5 MAR 76		Į.	TABULATED SOURCE DATA, 1H17, LARC VDHT 646-647	PAGE 135
			LARCVDHT646 1H17 01+X23 ORBITER WING	(RPRW27) (16 MAR 76)
REF	REFERENCE DATA	TA		PARAMETRIC DATA
SREF = 2690.0000 LREF = 474.8000 BREF = 936.7000 SCALE = .0059	0 SO.FT. 0 IN. 9 IN.	XMRP YMRP ZMRP	.0000 IN. BETA	8.000 ALPHA = .000 .000 RN/L * 2.000
PN/L (1) = 2	.000	HAW/HT(1) #	.850 MACH = 7.9095 PO = 490.20 TO	# 1368.1 HO = .66564-01
SECTION (1) OPBLIER	TER WING		DEPENDENT VARIABLE HIHREF	
27/9 . 4000	.6000	.8000		
ស្ដែល	. 0099			
00000000000000000000000000000000000000		.0096 .0096 .0582 .0509		
១១១២១	. 0309 . 0272 . 0212 . 0181	. 0431		
=======================================	. 000	HAW/HT(2) =	.900 MACH * 7.9095 PO * 490.20 TO	* 1358.1 H0 * .66564-01
SECTION (1) ORBITER	TER MING		DEPENDENT VARIABLE H/HREF	
2Y/B . +900	.6000	.8000		
	. 0089			
250 250 200 200 200 200 200 200 200 200	.0321	.0134 .0097 .0583		
	بنوبز	1850		
8600. C/B.				

	(RPRM28)
7. LARC VDHT 646-647	
TABULATED SOURCE DATA, 1H17. LARC VDHT 646-647	
	טי אאני סיי

PAGE 136 (RPRW28) (IE MAR 76) PARAMETRIC DATA	8.000 ALPHA	* 1388.6 HO * .80567-01	,	10-79508, * OH & 80557-01						,
	MACH BETA	5		\$	2					
LARC VDHT 646-647 TER WING		719.47		,	719.47					
ARC VDI		0			8					
TABULATED SOURCE DATA, 1H17. LARC VDH LARCVOHTG46 1H17 01+X23 ORBITER WING	. V. 1 00000 .	.850 MACH = 7.9584	DEPENDENT VARIABLE TYTICE		•	DEPENDENT VARIABLE H/HREF				
Ē	7 X X X X X X X X X X X X X X X X X X X		. 8000	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	HAW/HT(2) =		.8000		000000000000000000000000000000000000000	
	REFERENCE DATA	₹	M1NG .6000	.0103 .0055 .00510 .0510 .0370 .0321 .0329	000 HA	2 114G	.6000	. 0093	.0334 .0459 .0333 .0289	_
3 7		6,7000 IN. .0059 5.000	1) ORBITER WING +000	0045 0036 0250 0257 0252 0252 0251 0138	₹ 5.0	1108811ER	0004.	, ,	2500 2500 2500 2500 2000 2000 2000	2010.
DATE 16 MAR -	SPEF * 2690.	## ~ 	SECTION (1	x/c .175 .200 .200 .200 .400 .500 .500 .500 .500 .700 .800 .800	1) J/NE	SECTION (2Y/B	X/C 175	2003 2003 2003 2003 2003 2003 2003 2003	878. 878.

DATE 16 MAR	76			TABULATED SOURCE DATA, 1H17, LARC VDHT 646-647				ď	PAGE 137
				LAPCVDHT646 1H17 01+X23 ORBITER WING		=	(RPRW29)	(16 MAR 76	AR 76)
	REFER	REFERENCE DATA	TA T			PARAM	PARAMETRIC DATA		
SREF = 269 LREF = 47 BREF = 93 SCALE =	2690,0000 474,8000 936,7000	SO FT.	XXXXX YXXX ZXXX ZXXX	.0000 IN. .0000 IN. .0000 IN.	MACH = BETA =	8.000 .000	100 ALPHA	" " 	000.
PN/L (1) =	2	. 000 HA	HAW/HT(1)	.850 MACH * 8.1054 PO * 2520.7	2	± 	OH 2 1511	c	
SECTION ()	1.10RB1TER	SN I MG			!			,	
2Y/B	.4000	.6000	.8000						
7/C -178 -200 -200 -200 -200 -200 -200 -200 -20		0.000 000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.	. 0250 . 0159 . 0710 . 0619 . 0512						
RN/L (1) =	10.000		HAW/HT(2) *	.900 MACH = 8.1054 PO = 2520.7	10	* 145	1454.3 HO		= .14363
SECTION (1	1) ORB1 TER	E ING		DEPENDENT VARIABLE H/HREF					
27/8	4000	.6000	.8000						
x/c .175 .200 .255	2200	.0032 .0078							
	0067 0257 0253 0235 0235 0169	######################################	.0838 .0553 .0553 .0553						

PAGE 138	(16 HAR 76)		-5.000	. 18849-01				į	18848-01					
		DATA	ALPHA RN/L	皇					皇					
	(RPRM30)	PARAMETR1C	8.000 .000	4.1551					1221.4					
		PA							•					
			MACH BETA	5				•	5					
LARC VOHT 646-647				- 31.700					= 31.700					
ARC VD	9 N			5					8					
IH17.	7 OI ORBITER WING			7.4647	DEPENDENT VARIABLE H/HREF				- 7.4647	DEPENDENT VARIABLE H/HREF				
ABULATED SOURCE DATA.	LARCVDHT646 1H17 01			.850 MACH	DEPENDENT V				. 900 MACH	DEPENDENT \				
41		∢	X X X X X X X X X X X X X X X X X X X	HAW/HT(1) =		.8000	. 0413 . 0339 . 0958 . 0893		HAW/HT(2) #		.8000			
76		REFERENCE DAT	u g z z		MING S	.6000	.0512 .0377 .0612 .0650	ຕາຕ 🛨	0	E ING	.6000	.0409 .0335	000000 1000000 1000000 1000000 10000000	045.
		REFEREN	90. 74. 36.		LIORBITER	4000	00000000000000000000000000000000000000	(f) (f)	.10	1.10991TEP	0001.	.7	00000000000000000000000000000000000000	.0318
DATE 16 MAR			0 + 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2	SECTION :	8/x8	7.7 		ם אינ	SECTION (2Y.8	2, X 2, 1, 7, 5 2, 6, 6, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9,	ш-тийг. В СССССВ В ССССВВ	a. 1000 1000

TE 16 MAR 75			TABULATED SOURCE DATA, 1417, LARC VDHT 646-647	A, IH17, L I ORBITER WI	ARC VDH1	. 646-647			(RPRW31)		PAGE 1:	139
REFER	REFERENCE DATA	∢						PAF	PARAMETRIC DATA	DATA		
# 2690.0000 # 474.8000 # 936.7000	SQ. FT	# # # d d d E E E					MACH BETA		8.000 .000	ALPHA RN/L	# H	-5.000 5.000
(1) = 5.0	000 HA	HAW/HT(1) =	.850 MACH =	7.9611	8	= 735.33	10		1391.4	9		.80672-01
CTION (1) ORBITER	E WING		DEPENDENT VARIABLE H/HREF	ABLE H/HREF								
0004. 81YS	.6000	.8000								•		
9	#200°.											
	7690. .040. .040. .040. .0150.	.00093 .00088 .0482 .0482										
6200. 008.	0 0 0											
13 = 5.0	COO HA	HAW/HT(2) =	. 900 MACH	7.9611	8	= 735.33	5	•	4.1681	오		.80672-01
CTION (1) ORBITER WING	IR WING		DEPENDENT VARIABLE H/HREF	ABLE H/HREF								
2Y/B .+000	.6300	.8000										
0,	.0031											
250	.0368 .0361 .0169 .0169	.0084 .0081 .0434 .0382 .0314										
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PAGE	(16 MAR 76								(
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	32)	C DAT	ALPHA FN/L												
	(RPRW32)	PARAMETRIC DATA	8.000 .000	1211.4						¥. [[5]					
		PARA	ω							ĸ					
				_						0					
			MACH	10						5					
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PAGE 142	(RPRW34) (15 MAR 76)	PARAMETRIC DATA	*	E.UUU ALTAA E.000.	# 1348.7 HO # .64181-01			9	# 1348.7 MG # .04181-01					
				MACH BETA #	10				5					
LARC VDHT 646-647			•		■ 491.13				# 491.13					
LARC VD	E ING				g G	le.			0	La.				
ABULATED SOURCE DATA, 1H17.	LARCVDHT646 1H17 01 ORBITER WING			.0000 .0000	.850 MACH ± 7.9098	DEPENDENT VARIABLE H/HREF			.900 MACH = 7.9098	DEPENDENT VARIABLE H/HREF				
TABU	L.A.			XMRP # YMRP # ZMRP #	HAM/ST(-1) #		.8000	.0158 .0105 .0515 .0541	HAW, HT' 2) =		8000		5-100 5-200	
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34-E 16 MAR 76			TABULATED SOURCE DATA, THI7, LARC VOHT 646-647	PAGE 143
			LAPCICHTE46 1H17 01 ORBITER WING	(RPRM35) (:6 MAR 76)
REFE	REFERENCE DATA	T.	a.	PARAMETRIC DATA
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TABULATED SOURCE DATA, 1417, LARC VDHT 6+6-6+7	1 1
DATE 15 HAR 76	

DATE 15 MAR 75				¥.	TABULATED SOURCE DATA, 1417, LARC VDHT 646-647			PAGE 144
					LARCVDHT646 1H17 OI ORBITEP WING	(RPRH35)		(16 MAR 75)
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PAGE 145	(OPR801) (16 SEP 75)	PARAMETRIC DATA	10 ALPHA = .000	.7 HO = .19479-01														
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PAGE 149	(QPRB05) (16 SEP 75)	PARAMETRIC DATA	8.000 ALPHA = .000 .000 RN/L = 10.000	1448.2 HO = 14397		¢	
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			MACH #	10			
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(QPRB06) (16 SEP 75)

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PAGE 151 (OPRR07) (15 SEP 25)	PARAMETER DATA	MACH = 8.000 ALPHA = -5.000 BETA = .000 RN/L = 5.000	TO = 1396.0 HO = .81195-01		
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PAGE 159	(QPRB27) (16 SEP 75)	PARAMETRIC DATA	MACH ■ 8.000 ALPHA ■ .000 BETA ■ .000 RN:L ■ 2.020	TO = 1368.1 HO = .66564-01															
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PAGE 150	(OPRB28) (16 SEP 75)	PARAMETRIC DATA	B.000 ALPHA = .000	= 1388.6 HO = .80557-01		•									•						
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	LARCVDHT646 1H17 01+X23 ORB!TER FUSELAGE	(QPRB29) (15 SEP 75)
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PAGE 156 (QPRB34) (16 SEP 75) PARAMETRIC DATA	ALPHA = RN/L =	10-10-10-10 = OH
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PAGE 174	(OPRCO6) (16 SEP 75)	PARAMETRIC DATA	MACH - 8.000 ALPHA5.000 BETA000 RN/L100	10 = 1230.1 H0 = .19473-01				
TABULATED SOURCE DATA, 1417, LARC VDHT 646-647	LARCVDH1646 1H17 01+TB ORBITER CANOFY		.0000 IN. .0000 IN.	.000 MACH = 7.3731 PO = 23.805	DEPENDENT VARIABLE QDOT			
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PAGE 175	(QPRC07) (16 SEP 75)	PARAMETRIC DATA	MACH = 6.000 ALPHA = -5.000 BETA = .000 RN/L = 5.000	TO HO HO = 01395.0	r			
TABULATED SOURCE DATA, 1H17, LARC VDHT 646-647	LARCVOHIG46 1417 01+T8 ORBITER CANOPY		.0000 IN. .0000 IN.	.000 MACH = 7.9615 PO = 737.51	DEPENDENT VARIABLE ODOT			
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PAGE 177 (0PRC09) (15 SFP 75)	PARAMETRIC DATA MACH = 8.000 ALPHA = .000 BETA = .000 RN/L = .500	TO = 1269.4 HO = .30968-01	
TABULATED SOURCE DATA, 1H17, LARC VDHT 646-647 LARCVOHT646 1H17 01+T8+X23 ORBITER CANOPY	. NI 0000.	 .000 MACH = 7.6928 PO = 108.93 DEPENDENT VARIABLE QDOT .2130 	9990
DATE :6 MAR 76	REFERENCE DATA SREF = 2690.0000 50.FT. XMAP = LREF = 474.8700 [N. YMRP = 674.F. 474.8700] [N. ZMRP = 674.F. 474.F.	7/C NO .2457 2.050 .2856 3.050 .3390 .3390 5.000 5.000 5.000 5.000 5.000 5.000 5.000	

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PAGE 179	(QPRC11) (16 SEP 75)	PARAMETRIC DATA	8.000 ALPHA000 .000 RN/L - 5.000	= 1376.4 HO = .79966-01			
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TABULATED SOURCE DATA, 1H17, LARC VOHT 546-647	LARCYDHIGHS 1H17 01+T8+X23 ORBITER CANOPY		.N. 0000.	= .000 MACH = 7.959! PO = 723.36	DEMENDENT VARIABLE ODOT	.2130	2267
			XMRP YMRP ZMRP	ALPHA (1)	ELD	. 1960	6061.
DATE 16 MAR 76		PEFERENCE DATA	SREF = 2690.0000 SQ.FT. LPEF = 474.9000 IN. 89EF = 936.7000 IN. SCALE = .0039	P-VL (1) = 5.000 ALP	SECTION (1) OPBITER WINDSHIELD	7 TP80.	7/C NO 1.000 1.8574 2.000 1.2725 3.000 1.2221 4.000 5.000 6.000

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PAGE 180	(QPRC12) (16 SEP 75)	PARAMETRIC DATA	MACH = 8.000 ALPHA = .000 BITA = .000 RN/L = 10.000	TO = 1430.1 HO = .14365			
TABULATED SOURCE DATA, 1H17, LARC VOHT 646-647	LARCVOHT645 1H17 01+T8+X23 ORBITER CANOPY		. N: 0000 .	.000 MACH = 8.1063 PO = 2541.3	DEPENDENT VARIABLE ODOT	.2130	.5571
34 TE 15 MAR 76		REFERENCE DATA	SEEF # 2690.0000 SQ.FT. XMRP # 255	Pr 11 = 10.000 ALPHA (1)	SECTION () ORBITER MINDSHIELD	0540.	4.000+ 6000 - 9540 3.000 - 9540 3.000 - 953+ 6000 - 953+ 6000 - 953+

PAGE 181	(QPRC25) (16 SEP 75)	PARAMETRIC DATA	MACH - 8.000 ALPHA000 BETA000 RN/L100	TO -2-191.5 HO - 19145-01				
TABULATED SOURCE DATA, IH17, LARC VDHT 646-647	LARCVOHIS46 1H17 01+X23 ORBITER CANOPY			.850 MACH = 7.4713 PO = 32.700	DEPENDENT VARIABLE QUUT	.2130		O. C.
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PAGE 182	(QPRC26) (16 SEP 75)	PARAMETRIC DATA	B.000 ALPHA = .000 .000 RN/L = .500	10-6301€. ■ 0H 5.0891 ■				
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	(QPRC27) (16 SEP 75	DATA	ALPHA RN/L	오	ı			
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	LARCVDHTE45 1417 01+X23 CRBITER CANOPY	(QPRC28) (15 SEF 75	, 5,
REFERENCE DATA		PARAMETRIC DATA	
SPEF = 2690.0000 SQ.FT. XMRP LAEF = 474.8000 IN. YMRP BAEF = 936.7000 IN. ZMRP 504-E = .0059		MACH = 8.000 ALPHA = BETA = .000 RN/L = 5.	.000
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PAGE 185	(QPRC29) (16 SEP 75)	PARAMETRIC DATA	8 000 ALPHA ≈ .000 .000 RN/L ≈ 16 000	# 1454.3 HO # 14363			
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DATE 15 MAR 76	TABULATED SOURCE DATA, 1H17, LARC VOHT G46-647	PAGE 187
	LARCVDHI546 1H17 01 ORBITER CANOPY	(QPRC31) (16 SEP 75)
REFEPENCE DATA		PARAMEIRIC DATA
SREF = 2690.0000 SO.FT. XMRP LREF = 474.8000 iN. YMRP BREF = 936.7000 iN. ZMRP SCALE = .0059	.0000 IN:	MACH = €.000 ALPHA = -5.000 BETA = .000 RN/L = 5.000
PN/L (1) = 5 000 ALPHA (1)	(1) = .850 MACH = 7.9611 PO = 735.33	TO -57391 0H +.180572-01
SECTION (1) ORBITER WINDSHIELD	DEPENDENT VARIABLE QDOT	
¥ 0961. 0740. Y	60 .2130	
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PAGE: 188	(QPRC32) (16 SEP 75)	PARAMETRIC DATA	4 = 8.000 ALPHA = .000	TO = 1211.4 HO = .19041-01				
TABULATED SOURCE DATA, 1H17, LARC VOHT 646-647	LARCVOHTG46 1417 01 ORBITER CANOPY		.0000 IN. BETA .0000 IN.	.850 MACH = 7.4713 PO = 32.700	DEPENDENT VARIABLE ODOT			*
247E 12 MAR 76 TAB	, L	REFERENCE DATA	SREF = 2690.0000 SQ.FT. XMRP = LREF = 474.8000 lN. YMRP = 8986.7000 lN. ZMRP = SCALE = .0059	PN/L (1) = .:30 ALPHA (1) =	SECTION (1) CRBITER WINDSHIELD	Y .0513. 1960. Y	7/C NO 2426 1.000 .2426 2.000 .1013 3.000 .08:9	4,000 . 0365 . 0

DATE 16 MAR 76	TABULATED SOURCE DATA, 1H17, LARC VDHT 646-647	PAGE :89
	LARCVDH1646 1417 01 ORBITER CANOPY	(QPRC33) (16 SEP 75)
REFERENCE DATA	PARAMETRIC DATA	DATA
SAEF = 2690.0003 SQ.FT, XMRP : LREF = 474.8000 IN. YMRP : BPEF = 935.7000 IN. ZMRP : SCALE = .0059	= .0000 IN. BETA = 8.000	ALPHA ≈ .000 RN/L ≈ .500
FN/L (1) = .500 ALPHA (1)) = .850 MACH = 7.6961 PO = 111.17 TO = 1233.0	HO = .31093-01
SECTION (1) ORBITER WINDSHIELD	DEPENDENT VARIABLE QDOT	
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17.0 NO 1.000 .3257 2.000 .1241 3.000 .1356 4.000 5.000 .0344 .0616	.023!	

PAGE 190	(QPRC34) (16 SEP 75)	PARAMETRIC DATA	# \$HG : Y	BETA # 2.000 RN/L = 2.000			İ					
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PAGE 191	PARAMETRIC DATA	MACH = 8.000 ALPHA = .000 BETA = 5.000	TO = 1377.1 HO = .80824-01	
76 TABULATED SOURCE DATA, 1H17, LARC VDHT 646-647 LARC VDHT646 1H17 01 ORBITER CANDRY	REFERENCE DATA	2590.0000 50.FT. XMRP = .0000 IN. 474.8000 IN. YMRP = .0000 IN. 936.7000 IN. ZMRP = .0000 IN.	SECTION (1) 0RBITER WINDSHIELD DEPENDENT VARIABLE QUOT	. 3939 . 3527 . 0368 . 1089
34'E :5 MAP 76		S	SEC*:0N (1)0	9000000 7000000 9000000 9000000 5000000

24TE 15 MAR 75	TABULATED SOURCE DATA, 1417, LARC VOHT 646-647	PAGE 192
	LARCVOHT646 1H17 01 ORBITER CANOPY	(QPRC36) (16 SEP 75)
PEFEPENCE DATA		PARAMETRIC DATA
SPEF = 2690.0000 SQ.FT. XMRP = 128EF = 474 80.0 IN. ZMRP = 876.7000 IN. ZMRP = 80.000 IN. ZMRP = 80.000 IN.	.0000 IN. BETA	■ 8.030 ALPHA = .000 ■ .030 RN/L = 10.000
PN/L (1) = 10.000 ALPHA (1)) * .850 MACH = 8.1059 PO * 2532.5 TO	# 1460.6 HO # .14385
SECTION (1) CPB TEP WINDSHIELD	DEPENDENT VARIABLE QDOT	
Y	.2130	
7.0 NO 394; 7.000 2 394; 2.000 8593		
	.1213	

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Peffence Data Labolace Gata, 1H17 O1+78 External Tank Peffence Data LabovoHi646/647 1H17 O1+78 External Tank Peffence Data LabovoHi646/647 1H17 O1+78 External Tank Peffence Data LabovoHi646/647 1H17 O1+78 External Tank LabovoHi646/647 LabovoHi646/64		(OPRT	ARAMETRI	8.000 .000			. 2000	2.7096	.9	.6000	.0506 .0609 .1605 .2596 .2713	. 2554 . 2821		
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E		01+18			7.3731		. 0800		.5516	.4750		. 5209	.9738	0602*****
E MAR 76	RCE DATA	1H1 L-9/				NT VARIAE	.0600		.6584	.4500	7.8001. 5.8001.		3+5°	0602.
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2 6	(54		. 500	.32105-01		.3000	. 5343 . 5343		.6750		1.465		
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	ŭ	DATA	ALPHA RN/L	유	•	. 2500	.7450	2.7400	.6250		. 0581		
	(QPRT32)	PARAMETR1C	8.000 .000.	= 1270.3		.2000	4.6361	6.4718	.6000	0911 2392 2437 4438 4612 4612 4371	. 5213		
		u.	ıı I∢	10		. 1750		5.1633	.5750		.5237		
1.			MACH BETA	81.		. 1500		.0000	.5500	1184	. 0895		
1 646-6	ANK			= 117.19		. 1250		.5308	. 5250		.0755		
LARC VDHT 646-647	EXTERNAL TANK			9		. 1000		. 0000	.5000	. 1021 . 2075 . 5149 . 5534 . 5634	3485		
1417.	01+TB EX			7.7041	E GDOT	.0800		.9522	.4750		. 9525	.9738	
E DATA.	47 1H17			W	DEPENDENT VARIABLE GOOT	. 0600		1.1665	.4500	. 1388 . 1477 - 0194	757	.93+5	. 22-5
ED SOURCE	LARCVDHT646/647		0000 N	.000 MACH	EPENDENT	.0400		.1716	.4250		.1178	0006.	.1585 .2303 .2303 .2303 .3105 .3105 .3108
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TABULATED SOURCE DATA,	
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	03) (C DATA	ALPHA RN/L	오		. 2500	1.7981	.6250	7.		
	(OPRT03)	PARAMETR1C	.000 .000	1379.4		.2000	9.6773	.6000	. 2287 . 7054 . 9290 . 9509 . 9521 . 05351 . 0535		
		Q.	 T 4	10		.1750	11.1474-1	.5750		!	
+ 1			MACH BETA			.1500	. 3080	.5500			
LARC VDHT 646-647	TANK			= 497.82		.1250	1.3407	. 5250		!	
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1H!7.				7.9115	RE GDOT	.0800	2.3147	.4750	ر م بر	.9738	.7822***********************************
CE DATA.	647 1H17			MACH	DEPENDENT VARIABLE QDOT	.0600	2.9650	.4500		.9345	.7822••
TABULATED SOURCE	_ARCVDH1646/647 1H17 01+18		2.Z.Z	000 H	DEPENDEN	.0400	.3335	. 4250		0006.	្សាយ ។ មូល ១ សូល្លាល ។ មូល ១ សូល្លាល ។ មូល ១ សូល្លាល ។ មូល ១ សូល្លាល ។ មូល ១
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PAGE 197	16 SEP 75 3		000.01	. 14397		.2750 .3000	1.6162 1.0449 3.5083 2.3088 8.6775	.6500 .6750	1,8502 .3921 .9803 3.1325 3.3562 .3197 2.5659		
	05) (C DATA	ALPHA RN/L	¥		.2500	4.1816 13.4750	.6250	BES. ₹.		
	(OPRT05)	PARAMETR 1C	8.000 .000	1448.2		. 2000	19.6364	.6000	1.1840 2.3420 2.3920 2.9923 3.7765 4.1182		
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198	-		. 100	.19473-01		. 3000	.2362 .4359) • • • • •	.6750	,	. 2552		
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•	-	DATA	ALPHA RN/L	웃		. 2500	.5257	1.8025	.6250		.0373		
ļ	(OPRT06)	PARAMETR1C	8.000 .000	1230.1		.2000	2.8504	3.8539	.6000	0980 0980 1739 3137 3137	.3133		
		à	 	•		.1750		3.0910	.5750		.3467		
t 7			MACH BETA	23.805		. 1500		.0000	.5500	. 3038 . 3038	. 0499		
LARC VDHT 646-647	TANK			• 23.		. 1250		.2426	.5250		.0551		
LARC VD	EXTERNAL			ပ္ရ		.1000		. 0000	.5000	. 0889 . 1659 . 44650 . 374655 . 374655	2641		
1417.	01+18			7.3731	SLE 000T	.0800		. 5265	. 4 750		.6195	. 9738	• • • • • • • 2650
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		⋖	S GRAN	ALPHA (1)		. 3100		.8072	.3750	. 0553	.0988	.8000	
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PAGE 199	(QPRT07) (16 SEP 75)	PARAMETRIC DATA	8.000 ALPHA = -5.000	1396.0 HO = .81195-01		. 2000 3000 3000.	1.1858 0725.5 1578. 2857.5 875	*CBC.1 5856 8	.6000 .6250 .6500 .6750	. 6506 . 3566 . 6488 1. 4.388	.3310	
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			##	5		. 1750		12.6326	.5750		1. 66 60	
Ļ			MACH BETA	ij		. 1500		. 0000.	.5500	.2079 .5743 .6506 .787	. 1762	
LARC VOHT 646-647	TANK			= 737.5		. 1250		1.3864	. 5250		3001	
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1H17.	01+TB			7.9615	LE abot	. 3800		3.3146	.4750		3.8949	27.
TABULATED SOURCE DATA.	71HI 279			# HACH	DEPENDENT VARIABLE	. 0600		4.9770	.4500	. 4657 - 4657 - 699 - 699 - 6551	5505.	0+Z.
NTED SOUR	LARCVDH1646/647		0000 0000 0000 0000 0000	.000 H	NBCNBABO	0040.		.8147	.4250		3370	6096 6096 6096 6096 6096 6096 6096 6096
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		ح.	XMRP VMRP ZMRP	ALPHA (!)		0010.		4,4860	.3750	870E.	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
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	_	DATA	ALPHA FY/L	오		.2500	7624.	.3561	.6250	. 0506		
	(OPRT08	PARAMETRIC	9.000 .000	1231.5		. 2000	2.4793	3.6971	.6000	2011 2011 2011 2011 2011 2011 2011 2011		
		ď	11	10		.1750		3.4338 3	.5750	. 2967		
Ļ			RACH BETA	775		. 1500		0000	.5500	. 0719 . 0542 . 0553 . 0553 . 0553		
LARC VOHT 646-647	AL TANK			62		. 1250		. 2984	.5250	. 0433		
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PAGE 2	16 SEP 75			'n.		.2750	.1573	,6500	.1996 .0835 .1745 .3718 .3906		
	~	C DATA	ALPHA RN/L	皇		.2500	.9241	.6250	. 0725		
	(QPRT09)	PARAMETRIC	8.000 .000	1269.4		.2000	4.6295	.5000	.1328 .2164 .2506 .4505 .4901 .4018 .3954		
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7.47			MACH BETA	108.93		.1500	C	. 5500	.0803 .0685 .3735 .3712		
LARC VOHT 645-647	NAL TANK			= 108		.1250		. 5250	. 1980		
LARC VD	23 EXTERNAL			9		. 1000	c c	0000.	. 61497 . 6148 . 6148 . 6148 . 5592 . 3269		
IH17,	, 01+T8+X23			7.6928	PLE abot	. 0800		614/.	.8021	.9738	†9 †1.
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		REFERENCE DAT	SS	500 AL	VAL TANK	. 0050	, C	3500	.1364 .1000 .1553 .1555	.7500	
37 5		REFER	2690.0000 474.8000 936.7000	ų.	1)EXTER	. 0000		3.1460	.1397 .1397	.7000	.1643 .2536 .3516 .3516 .3583 .3870 .3737
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PAGE	16 SEP		■ et			.2750	. 54.25 25.425	1.2694	.6500	. 66 52 .3458 .6263	. 1435		
	16) (C DATA	AL PHA RN/L	오		.2500	3.0688	6.0319	.6250		.3457		
	(QPRT1G)	PARAMETRIC	8.000 .000	1339.3		. 2000		13.9723 (.6000	.6638 .5744 .6898 .0970 .0913	.1109		
		à	11	10		.1750		9.8618 13	.5750		. 2428		
Č.			MACH BETA			.1500		0000.	.5500	. 3081 . 3061 . 9519	_		
LARC VDHT 646-647	NAL TANK			= 493.62		. 1250		1.0655	. 5250		. 3609		
	K23 EXTERNAL			O.		. 1000		.0000	.5000	.7527 .6851 1.1992 1.4654 1.1656	1.3815		
. 1417,	7 01+T8+X23			7.9104	RE ODOT	.0800		1 8443	.4750		2.2481	.9738	.5200
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ATED SOURCE	LARCVDHT646/647		00000 00000 00000	. 000 M	DEPENDEN	. 0400		. 5259	.4250	:	.3094	.9000	.4391 .5528 .5528 .6189 .5079 .5079
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		٨	X X X X X X X X X X X X X X X X X X X	ALPHA (1)		.0100		7.5014	3275.	.3876	. 3624	.8000	
		REFERENCE DATA	0 Z Z	COO AL	JAL TANK	. 0050		1.8814	.3500	40478 4708 4758	.646	.7500	
18 76		REFE	2690.0000 474.8000 936.7000	₩	1)EXTERNAL	. 0000		7.1785	.3250	4544. 4584.		.7000	. 78839 . 78839 . 7461 . 8459 . 9399
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503	15)		5.000	. 79966-01		3000	- m in	4.3589	0 .6750		6 1.0458		
PAGE	16 SEP		a 17	•		.2750	.7406		.6500	.8804 .4992 .8578 1.1853	. 193		
	11.)	C DATA	ALPHA RN/L	오		.2500	4. 2089	7.1385	.6250		.4539		
	(QPRT11)	PARAMETR1C	9 .000 .000	1376.4		. 2000	11.9990	16.4339	.6000	.8106 .8819 .8853 .1.3338 .1.3338	1.3768		
	LARCVDH1646/647 1H17 01+18+X23 EXTERNAL TANK	a.	# # I∢	<u>.</u>		.1750		12.4737 1	.5750		1.5621		
r.			MACH BETA			.1500		. 0000	.5500	1775. 4094. 0765.1	. 2586		
LARC VDHT 646-647						.1250		1.4815	.5250		6684.		
LARC VD				2		.1000		.0000	.5000	. 9483 . 9348 . 1. 8636 . 1. 8636 . 1. 8636	1.2978		
1417.				7,9591		. 0800		2,5685	.4750		2.8452	.9738	.6608
TABULATED SOURCE DATA,			.0000 .0000 .0000 .0000			.0530		7.1081	.4500	•	. 4508	.9345	.6576
						.0400		.6697	.4250	:	4200	0006.	. 55 8 1 6 6 7 6 6 6 6 7 6 6 6 6 7 6 6 6 7 6 7 6
			5.6.5	u		. 0200		.6501	. 4039	2001 2008 2001 2001 2001 2001 2001	0 0 (.8530	74370 1.02846 1.02846 1.0286
		⋖	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	ALPHA (1)		.0100		9.2007	.3750	7115.	.5058	ccca.	
2 76		REFERENCE DATA	2690.0000 SQ.FT. 474.8000 IN. 936.0059	= 5.000	1)EXTERNAL TANK	0020		1.7403	.3500	.4888 .5537 .5261	.8578	.7500	.7089 .3621 1.1023 .5246
						. 0000		8.4812	.3250	. 4674 . 6380 . 6380		0007.	.6298 .9334 .9334 .8944 1.1667 1.1458
DATE 16 MAR			SAEF BAEF SOAEF A # # B	RN/L (1)	SECTION (x/r	PH1 67.500 90.000		7/7	1		.'. x	PH1 55.500 67.500 13.5.600 18.5.600 187.500

The state of the s

20 4	(57		.000		. 14365		. 3000	3.0343 7.0852	9.4724	.6750	0 0 0	•		
PAGE	. 435 91		μ н		Ħ		. 2750	1.7798		.6500		. 6004		
	12) (C DATA	ALPHA RN/L		유	,	.2500	10.8222	12.4100	.6250		/aic. i		
	(QPRT12)	PARAMETR1C	8.000 .000		1430.1		.2000	20.0296	19.8741	.6000	2.1456 2.5625 1.7487 2.8453 3.6401 3.6959	2.7130		
		Q.	 ¥₹		٠ •		.1750		15.5303	.5750		4.0633		
7+1	v		MACH BETA		2541.3		.1500		.0000	.5500	1.1582 .8787 4.3434 3.5528	1.1299		
LARC VOHT 646-647	NAL TANK				* 25 ¹		.1250		3.3235	.5250		1.2076		
LARC VE	01+T8+X23 EXTERNAL TANK				O a.		. 1000		. 3000	.5000	3.0703 3.0703 3.1149 3.3546 3.556	3.3994		
IH17.					8.1063	3LE abot	.0800		5.9305	.4750		6.1429	.9738	3543.1
RCE DATA.	1H1 7+0				MACH #	DEPENDENT VARIABLE	.0600		11.8996	. 4500	. 9395 1.1596 1.1279	1.0909	.9345	1.7245
TABULATED SOURCE	LARCVDHT646/647 1H17		.0000 IN.	0000 IN.	.000 M	DEPENDE	0040.		1.6532	. 4250	•	1.2721	0006.	1.1495 1.8477 2.1006 2.1309 1.9721 2.2981 2.4596
TABUL	LARC						. 0200		1.2422	4000	1.225 1.225 3.1.2726 5.906 5.906 1.4.15 8.15	586±.	.8500	1.8586 1.8825 2.6819 1.8847
		Ā	X X X X X X X X X X X X X X X X X X X	ZMRP	ALPHA (1		.0100		14.7024	.3750	1.2879	1.3718	.8000	1.99905 1.70005 2.10005 2.10005 2.0005 2.1774 2.774
		REFERENCE DATA	SQ. FT.	Z	000 A	NAL TANK	.0050		3.9164	3500	1.123 1.423 1.444 1.233	2.4783	. 7500	1.8890 1.77 1.77 1.37 3.34 3.34 3.34 3.34 3.34 3.34 3.34 3
A 76		Bulle	690. 474	936.7000		1) EXTERNAL	. 3000		14.8505	.3250	1.1538 1.5388 1.5388		.7000	1.9692 1.7003 2.2512 2.8512 3.4.83 3.7478
DATE 16 MAR			יין או ער ער ער ער ער	ıı H W	RN/L (1)	SECTION (X۱۲	PH1 67.500 90.000	112.500	X/L	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	10	x,L	PHI 000 45.000 67.500 90.000 11.2.500 135.000 180.000

DATE 16 MA	MAR 75			TABUL	TABULATED SOURCE DATA, 1H17,	CE DATA	1H17.	LARC V	LARC VDHT 646-647	47				PAGE	205
				LAR	LARCVDHT647	1H17 TB	EXTERNAL	TANK				(QPRT13)	J	16 SEP 7	75)
	REFER	REFERENCE DATA	⋖								a.	PARAMETRIC	DATA		
SREF = 6 LREF = 6 BREF = SCALE =	2690.0000 474.8000 936.7000	SO.FT. IN. IN.	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX		NI 00000					MACH BETA	# # I.4	8 .000 .000	ALPHA RN/L	11 11	.000
RN/L (1)	**	.130 AL	ALPHA (1)		000	MACH =	7.2734	9	± ±	14.840	70	1235.8	웃	•	.18053-01
SECT 10N	SECTION (!) EXTERNAL TANK	AL TANK			DEPENDEA	DEPENDENT VARIABLE GOOT	ILE abot								
x/L	. 3000	.0100	. 0200	.0400	.0600	.0800	.1000	.1500	.2000	.2500	.3000	.3500	.3750	4000	.4250
PHI .000 45.000 67.500 90.000 112.000 135.000									ە. 1. 1.		. 1524 . 2711 . 8066	. 0882		.0739 .0746 .0544 .0543 .0183	
180.000	1.6057	.5768	. 0834	.0919	.0733	.0611	.0000	0000.	3.6084	1.3621	1.0403	. 1412	. 0877	.070 3 .0221	.0843
X/L	.4530	.4750	.5000	.5250	.5500	.5750	.6000	.6250	.6500	.6750	.7000	.7500	.8000	.8500	.9000
PHI .000 .000 67.500 99.000 .12.500 .135.000	. 0749 . 0763	9690 .	.0757 .0817 .0573 .0502 .0541	. 0796	. 0475 . 0550 . 0729	.0487	.0578 .0692 .0693 .0559 .0559 .0585	.0606	. 0446 . 0691 . 0686	. 0425	0505 0505 0505 0504 0508 0538 0538	.0473 .0638	.0602 .0463 .0511 .0564 .0564 .0527 .0525	. 0563	.0511 .0501 .0576 .0509 .0448
X/L	.9345	.9738													
PH1 180.000	. 0503	.0576													

206	^		.500	30594-01		.4250	۳ ۲۰	0006.	. 0893 . 0920 . 0926 . 0976 . 0844 . 1044
PAGE	16 SEP 75		и п			0004.	. 1246 . 1098 . 1207 . 0399 . 1497 . 1333	.8500	.1004
	J	C DATA	ALPHA RN/L	유		.3750	¥7.41.	.8000	.0904 .1029 .0985 .0677 .1049
	(QPRT14)	PARAMETRIC DATA	8.000 .000	1255.1		.3500	. 1528	.7500	. 0990 . 1044 . 0961
		a.	" "	T0 =		.3000	.5168 .5168 1.4638	. 7000	. 0926 . 1063 . 1139 . 1068 . 1172
‡,			MACH BETA	105.69		. 2500	.9794	.6750	.0987
LARC VDHT 646-647				= 105		.2000	4.4116 6.6353	.6500	0824 0970 1226
LARC VD	TANK			O O		.1500	0000.	.6250	9119
1417.	EXTERNAL			7.6879	LE GDOT	.1000	.000.	.5000	
CE DATA,	1H17 T8			MACH =	DEPENDENT VARIABLE GOOT	. 0800	.1090	.57.3	.1187
TABULATED SOURCE DATA,	LARCVDHT647 1H17 TB EXTERNAL		0000 0000 0000 0000	. 000 HA	DEPENDEN	.0600	.1398	.5500	.0895 .0889
TABULA	LARC			H		00+0.	6+9:	.5250	. 0851
		Ą	X	ALPHA (1)		.0200	. 1485	.5000	27 87
		REFERENCE DATA	S	500 AL	AAL TANK	.0100	1.0627	.4750	. 1351
7. 76		REFER	2690.0000 474.8000 936.7000	u;	DEXTERN	. 0000	2.9439	.4500	1476
DATE 15 MAR			SREF = 26 LREF = L BREF = C	P::// (1)	SECTION (1) EXTERNAL TANK	X/L	PHI .000 45.000 90.000 112.500 135.000 187.500	٦/ x	1

. 0882 .0754 X/E PH1 180.000

.9345 .9738

DATE 16 MAR	IR 76			TABULA	ABULATED SOURCE DATA, 1417,	CE DATA,	1417.	LARC VE	LARC VOHT 646-647	1.47				PAGE	207
				LARC	LARCVDHT647 1H17 TB	1H17 TB	EXTERNAL	TANK				(QPRT15)	_	16 SEP 7	15)
	REFE	REFERENCE DATA	LA TA								u.	PARAMETRIC	DATA		
SCALE H H H BCALE	2690.0000 474.8000 936.7000	SO SO SO SO SO SO SO SO SO SO SO SO SO S	X X X X X X X X X X X X X X X X X X X		 2.7.2 0.000 0.000 0.000					HACH BETA	 <	8.000 .000	ALPHA RN/L	и и	. 000 . 0000
(I) Time	14	2.000 AL	ALPHA (1)		.000 HA	MACH #	7.9096	9	06±	1.51	10	1372.8	9	'n	.66874-01
SECTION	SECTION (1) EXTERNAL TANK	NAL TANK			DEPENDENT VARIABLE QUOT	IT VARIA	3LE QDOT						,		
X/L	. 0000	.0100	. 0200	.0430	.0600	.0800	. 1000	.1500	.2000	.2500	.3000	.3500	.3750	4000	. 4250
PHI .000 45.000 67.500 90.000 112.500									10.4962		.6196 1.2958 3.6470	.3503		.335 .3228 .323 .2443 .0645	
180,000	7.4710	2.6820	.3464	.3482	. 3011	. 2648	. 0000	.0000	.0000 14.5686	6.3273	4.8470	.5998	.3257	.0673	. 2975
X/L	. 4500	.4750	.5000	.5250	.5500	.5750	.6000	.6250	.6500	.6750	.7000	.7500	.8000	.8500	0006
PHI	. 3160 . 3068	.2701	. 257.5. 257.5. 25.25. 26.05. 25.00.5.	6.46a.	. 2040 . 2094 . 2775	₽ ₽93.	. 23.44 23.44 23.44 23.53 23.53 23.53 23.53 23.53	. 2349	. 2144 . 3115.	.2260	. 2187 . 2290 . 2091 . 1931 . 1940	.1916 .1980 .2033	.1996 .2017 .2026 .1935 .1593 .1941 .2092	.1828 .2436	.2063 .1995 .1756 .1715 .1898 .1815
X /L	.9345	.9738													
PH1 183.000	.2208	.1976													

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٠ ٢	7 A A 7 5			TABU	TABULATED SOURCE DATA,	RCE DATA	, 1H17.	LARC VE	LARC VOHT 646-647	547				PAGE	208
				LA	LARCVDHT647 1H17 TB	IH17 TB	EXTERNAL	TANK				(0PRT16)	_	16 550	75 ,
	1,130	PEFEPENCE DATA	TA.											į	
SREF	2690 2020		2									PAKAME KIC	C DAIA		
LPEF = BREF = SCALE =	936 7000 936 7000	ZZ	YMRP YMRP ZMRP	и и и						# B	MACH BETA	8.000 .000	ALPHA RN/L	я и	.000
1 7/20		000 AL	ALPHA (1		£ 000.	MACH	7.9634	g. Ci	746	748,71	Ę	0 3351	9		
SECTION	(:)EXTERNAL	VAL TANK			DEPENDE	DEPENDENT VARIABLE	SLE abot			:	2				10-4/608.
.7 X	0000	.3100	.0200	.0400	.0600	0.80.	. 1000	. 1500	.2000	.2500	3000	35,00	3750	0001	0 0 .1
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														.3612	
118.533								-	12.0990		.7133			. 3686 . 3686	
33											4.3193	.4311		. 0880	
00	8.7368	3.1593	.3781	.3830	.3420	. 2915	.0000	.0000 16.3223		7.5095	5.7480	.6770	3973	3538	מאצ
X /L	. 4500	.4750	.5000	.5250	.5500	.5750	.5000	.6250	.6500	.6750	7000	7500			
ii d														900	0006.
			אטט				6773.						.2284		
67.500 90.000			7708				. 2731 				.2579 .2579		.2587		.2132
							. 2593 . 2593				. 2582		9727.		. 2000
	.3296	. 2966	.3231 7838.	.3342	. 2378 . 3517	2598	. 26.00 26.00 26.00 26.00	2864	. 2585. 2585 27.	į	2499	.2164 0049	. 2305 . 2305	.2857	7.61.
x /L	.9345	.9738				•			1	. 641	9050.	55/52	. 6363	. 2579	.2123
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SATE 16 MAR 76	AR 76			TABUL	TABULATED SOURCE DATA,	CE DATA	. IHI7.	LARC VE	LARC VDHT 646-547	547				PAGE	209
				LAR	LARCVDHTS47 1H17 TB	1H17 T8	EXTERNAL	TANK				(QPRT17)		(16 SEP 7	15 1
	REFE	REFERENCE DATA	TA								a.	PARAMETRIC	DATA		
0.100 0.100 0.000 000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.	2690,0000 474,8000 936,7000	S 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	XMRP YMRP ZMRP		00000 00000 00000					MACH BETA	##	8.000 .000	ALPHA RN/L	<u>.</u>	000.01
à	H 	:0.000 A	ALPHA (1)	ıı	.000 ×	MACH	8.1058	9	- 255	2528.1	10	1+34.9	9		.14356
SECTION	' DEXTER	DEXTERNAL TANK			DEPENDEN	DEPENDENT VARIABLE	3LE QDOT								
X/L	. 3000	.0100	. 0200	00+0.	. 0600	. 0800	.1000	.1500	. 2000	.2500	. 3000	.3500	.3750	4000	.4250
								W	20.7208		1,4786 2,9365 8,3622	.7768		.7338 .7102 .7030 .5343 .1452	
1()	15.7770	6.2278	.7546	.8328	. 6685	. 5992	.0000	. 0000	20.6447 13.7845		10.7924	1.4119	.9579	.1518	.7531
X/~	COUT.	.4750	.5000	.5250	.5500	.5750	.6000	.6250	.6500	.6750	. 7000	.7500	.8000	.8500	.9000
្តី	. 6230 . 6471	2079.		+869.		.8401	. 55 50 50 50 50 50 50 50 50 50 50 50 50 5	.6140	,4700 4756 8998	9094.	.4662 .4818 .4786 .4383 .4253	. 4258 . 5091 . 946	.4760 .4437 .4905 .4655 .4635 .4635 .4632	.4501 .6295 .5425	. 4764 . 4083 . 4075 . 3826 . 4445
., ×	3456.	.9738													
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LARC VDHT 646-647	
i, 1H17.	
TABULATED SOURCE DATA,	
DATE : 5 MAR 75	

PACE 210

	.100	19826-01		.4250		.0817	0006.	.0699 .0969 .1064 .1232 .1181		
	и и	•		0004.	. 1036 . 1354 . 1354 . 1129 . 0173	.0175	.8500	. 1460 . 0258 . 0472		
DATA	AL PHA RN/L	유		3750		. 1099	.8000	.0648 .0078 .1007 .1153 .1225 .1387		
RAMETR1C	8.000 .000	1226.3		.3500	.1353	. 1802	.7500	.1269 .0434 .063!		
PA										
	ı.	10		.3000	. 2229 .4122 1.0801	1.4051	.7030			
	MAC BE1	016		.2500		1.8181	.6750	1216		
				.2000	€ 083.5	4.1067	.6500	. 1327 . 1886 . 0422		
		9		. 1500		. 0000	.6250	9970		
		8475.7	E GDOT	1300		0000	.6000			
		٠	VAR!AB	.0800		.1316	.5750	. 1308		
			INGCN3d3C	. 0600		. 1266	.5500	. 1286 . 1317 . 0516		
	999	•		.0400		. 1600	. 5250	. 0753		
	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	HA (1)		.0200		.1585	.5000	1.330 1.330 1.330 1.330 1.330		
INCE DATA	g z z		TANK	0100		.8213	.4750	66 2:	.9738	.0398
BE 3 ± 3d		·:		. 8883		2.1331	COS4.		3456.	.050
	SREF = 2 LPEF = 1 BPEF = 1 SCALE = 1	RN, E C 13	SECTION (x/L	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	180.000	x /L	PH! 4 25 000 90 000 90 000 1128 000 135 000 1000	7/F	FH1 180.000
	PEFEPENCE DATA	# 2690.0000 SQ.FT. XMRP # .00000 IN. MACH # 8.000 ALPHA # 936.7000 IN. YMRP # .0000 IN. BETA # .000 RN/L E # .0059 IN. ZMRP # .0000 IN.	# 2690.000 SQ.FT. XMRP # .0000 IN. HACH # 8.000 ALPHA # 8.000 RN/L # 936.7000 IN. YMRP # .0000 IN. E # 7.2748 PO # 14.910 TO # 1226.3 HO # 1226.3 HO # 14.910 TO # 1226.3 HO # 14.910 TO # 1226.3 HO # 14.910 TO # 1226.3 HO # 14.910 TO # 1226.3 HO # 14.910 TO # 1226.3 HO # 14.910 TO # 1226.3 HO # 14.910 TO # 1226.3 HO # 14.910 TO # 1226.3 HO # 14.910 TO # 1226.3 HO # 14.910 TO # 1226.3 HO # 14.910 TO # 1226.3 HO # 14.910 TO # 1226.3 HO # 14.910 TO # 1226.3 HO # 14.910 TO # 1226.3 HO # 14.910 TO # 1226.3 HO # 1226.3 HO # 14.910 TO # 1226.3 HO # 1226.3 HO # 14.910 TO # 1226.3 HO # 1226.3 HO # 1226.3 HO # 1226.3 HO # 1226.3 HO #	= 2690.000 SQ.FT. XMRP = .0000 IN. BETA = 8.000 ALPHA = -1 = 474.8000 IN. YMRP = .0000 IN. BETA = .000 RN/L = -1 = 936.7000 IN. ZMRP = .0000 IN. BETA = 14.910 TO = 1226.3 HO = 110N (:)EXTENAL TANK	# 2690.000 SQ.FT. XMRP = .0000 IN. # 474.8000 IN. YMRP = .0000 IN. # 474.8000 IN. YMRP = .0000 IN. # 936.7000 IN. ZMRP = .0000 IN. E = 936.7000 IN. E = 1000 IN. ZMRP = .0000 MACH = 7.2748 PO = 14.910 TO = 1226.3 HO = .100 IN. IION (:)EXTERNAL TANK .0000 .0000 .0000 .0000 .0000 .1000 .1500 .2500 .3000 .3500 .3500 .4000	##CFFERENCE DATA ##CH = 8.000 ALPHA = 1.0000 IN. ##T4.8000 ALPHA = 1.000 ALPHA ALP	FEFENCE DATA PARAMETRIC DATA PARAMETRIC DAT	FEFENCE DATA PARAMETRIC DATA PARAMETRIC DAT	FEFFINE DATA FINAL RIPE FOR EMETRIC DATA FOR	FEFENCE DATA FEFENCE NATA FE

DATE 16 MAR 76				TABUL	TABULATED SOURCE DATA, 1H17,	JURCE [DATA.		LARC V	LARC VOHT 646-647	647					211
				LAR R	LARCVOHI647 IPI7 TB EXTERNAL	7 111	7 TB EX	TERNAL	TANK				(QPRT19)		(16 SEP	. 57
œ	REFER	REFERENCE DATA	.										PARAMETR1C	C DATA		
2692.0000 474.8000 936.7000		SS. N. N. N.	XMRP YMRP 2MRP								ž 8	MACH BETA	8.000 .000	ALPHA RN/L		-5.000 5.000
- (1)	N)	000	ALPHA (1)		.000	MACH	. 7.	7.9577	8	17	715.74	10	= 1387.0	£		.81670-01
SECTION (1) EXTERNAL TANK	X TEPN	AL TANK			DEPEND	ENT VA	DEPENDENT VARIABLE GOOT	1000								
. 0000	000	.0100	. 0200	.0400	.0600		. 0800	0001.	. 1500	. 2000	.2500	.3000	.3500	.3750	0U04.	.4250
PH1 .000 .45.000 67.500 90.000 112.000 135.000										13.0365		1.1198 2.1017 5.7362	.6092		. 5836 . 5834 . 6590 . 6111	
0 10.0689		4.2585	.7191	. 7967	.7715	•	7134	0000	. 0000	16.5+37	8.9557	7.3418	. 7217	9764.	8/S/ 10.	. 3455
. 4500	200	.4750	.5303	.5250	.5500	•	5750 .	6000	.6250	.6500	.6750	.7000	.7500	.8000	.8500	.9000
PH1 000 65.500 90.550 112.500 135.600 187.550		.7305		.3316	.6807 .6951 .7555.		2072	3159 4243 4244 5554 6756 6762 6859 5915	.2138	. 6975 . 7005	.6126	.4008 5066 .6391 .6156 .7012	.6866 .1716 .2979	.2718 .4114 .5462 .6571 .6503 .7275 .6333	.7530 .2493 .1482	.3581 .4749 .6081 .7098 .6488 .5845
.93	9345	.9738														
1685. 000	161	00														

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LARC VDHT 546-647	NAT TANK
TABULATED SOURCE DATA, 1417, LARC VDHT 546-647	XNAT LANGUETY PCC. OF L C. C
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ر -	.000	.18500-01		4250				₩6.0.	. 9000	ų č	8 8 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	94.40	.0521		
PAGE 212		= .		0		.0874 .0682 .0538 .0562	0761	.0151	.8530			.0490	0518		
F (16	ALPHA RN/L	웃		, F				.0763	.8000	.0567	.0485 .0568 .0513	9150.	. 0550.		
(GPRT20) PARAMETRIC D	8.000 .000	1199.0		c u	0000		.0831	. 1258	.7500			.0482	. 0580		
g g	• •	• 2	,	•	. 3000	. 1283 . 2432	ncac.	. 9552	.7000		.0507	.05020	. 0585		
۲	MACH BETA				. 2500			1.3188	.6750				.0506		
T 546-647		950			. 2000	2.3699		3.5570	.6500			6770°	.0541		
LARC VDHT		c o	2		. 1500			0000	.6250				.0751		
417. Exter		(!	7.27.88	-E QD01	. 1000			0000.	.6000	1	. 0616 . 0616 . 0555	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	. 5550. 6450.		
CE DATA, 15			•	T VARIABLE	. 0800			.0628	.5750				.0619		
ABULATED SOURCE DATA. LARCVDHT647 (H17 T8+X	000000000000000000000000000000000000000	-	ODO MACH	CE PENDENT	.0600			0.523	.5500			0	. 0482 . 0680		
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	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	# ga_2	ALPHA (!)		. 0200			2355	6002))	.0661				
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76		0000 0000 0000		C :)EXTERNAL	0000				5 + / C	2				.9345	٠
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DATE 16 MAR	4R 76			TABULA	*ABULATED SOURCE DATA.	CE DATA.	IH17.	LARC V	LARC VDHT 646-647	7+1				PAGE	213
				LARC	LARCVDHT647 IH!7 T8+X23 EXTERNAL	1H! 7 TB+	X23 EXTE	RNAL TANK	¥			(QPRT21)	-	16 SEP	1 57
	REFE	REFERENCE DATA	4.								•	PARAMETRIC	DATA		
S CALE	2695.000.008 0000.008 0000.008	G Z Z	X X X X X X X X X X X X X X X X X X X	9.4.9	7 Z Z Z					MACH BETA	* * * * * * * * * * * * * * * * * * *	8.000 .000	ALPHA RN/L		.500
FW.1 (11)	н	500 ▲	ALPHA (1)		.000 MA	MACH	7.6931	9	501 =	109.13	10	1238.2	오	•	30804-01
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X/i.	. 4500	.4750	.5000	.5250	.5500	.5750	.6000	.6250	.6500	.6750	.7000	.7500	.8000	.8500	0006.
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CATE 16 MAR	AR 75			TABUL	APJUATED SOURCE DATA,	RCE DATA,	. IH17.	N DAYT	LAPC VOHT 646-647	547				3944	<u>م</u> ا
				LAR	LARCYDHT647 1H17 T8+X23 EXTERNAL	1H17 TB	XZ3 EXTE	RNAL TANK	¥			(QPRT22)) (22)	16 SEP	1. 27
	BEFE	REFERENCE DATA	T.A.								_	PARAMETRIC	C DATA		
	2690.0000 474.8000 936.7000	gzz gzz	X X X X X X X X X X X X X X X X X X X	2,4,4	00000 00000 00000 00000					¥ 38	MACH BETA	. 000 000	ALPHA RN/L		. 000 2 . 000
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10	7 2885	4.2300	₹085	4015	.3117	.2768	0000.	0000	14.2124	6.0614	3.6363	.8119	8944.	CB26.	.3587
××	3054.	4750	. 5000	.5250	.5500	.5750	.6000	.6250	.6500	.6750	,7000	.7500	.8000	.6500	0006
	• M (A) • 00 (A) • 00 (A) • 00 (A)	.357.	######################################	.3388	. 38 3C	.3166		. 34 66	. 2485 . 2670 . 3664	¥75.	. 399. . 3292. . 3293. . 189. . 189. . 1803. . 1803.	. 3009	. 3098 . 3094 . 3290 . 2594 . 2594 . 2653 . 2853	. 2768 . 575: 5475:	2933 2840 2840 2440 24446 24463
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180 180 000	9062.	. 2939													

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TABULATED SOURCE DATA, 1417, LARC VOHT 646-647 LA9CVOHT647 1417 18+X23 EXTERNAL TANK (QPR123) (16 SEP 75)		0 SQ.FT. XMRP = .0000 IN. MACH = 8.000 ALPHA = .000 IN. YMRP = .0000 IN. BETA = .000 RN/L = 5.000			DEPENDENT VARIABLE ODOT			9£8h.	1.1470	12.2235 2.5812 .3744 3.8982 .0828	5973.	5.6038 .6173 .5575 .4464 .3988 .0000 .0000 .0000 .0000 .5575		. 00.0.	9144. 995. 904. 905. 955. 968. 968.	.3816	9[65: 8[65: 1/64: 0555; 12/5: 055;		
	ENCE DATA	S0.51		<u> </u>	AL TANK							•	•		- W (.9738		000
M4R 75	REFERI	2690.0000 474.8000 936.7000	(1) = 5.00		SECTION (1) EXTERNAL TANK	. 0000	,	3 C 7	10	0.0	1	B. //10	.4500			.5803	.9345		
DATE 16		SCALE =	PN/L		SECTION	X/L	PHI	45.000 000	90.000	112.500	157.500		X/L	ā		157.500	X/L	H.	•

216 75)		000		.14390		1,000 0 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,00					1.5593	. 9000	1,7633 1,7749 1,6242 1,9123 1,5608 1,7974 1,9560			
PAGE 2		.01		u				1.3676	1.2604 3266	1 5275 1.5335	.3069	.8530	1.8649 1.8496 1.8783			
-	: DATA	ALPHA PN/I		Ş	2	i t	06/6.				1.4615	.8000	1.8918 1.8781 1.9943 1.8504 2.0479 1.8627 1.8963			
(QPRT24)	PARAMETRIC	8.000		משחו		((. 3500			1.4186	2.5676	. 7500	1.6867 2.0696 2.1014			
	å	* 1	-			1	. 3000		3.1046 6.9044 12.0932		9,3892	. 7000	1.8696 1.9012 2.0657 2.0657 1.9453 1.9563			
ŗ.		HACH	2 86				. 2500		-		13.3578	.6750	2.0799			
1T 646-647				į	= 2547.7		. 2000		21.0750		20.9015 1	.6500	1.9977 7.99.5 5.0413			
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1H'7, LAR					8.1066	LE QDOT	.1000				. 0000	.6000	2.1498 1.8381 1.6610 1.9710 2.1268 1.9769 1.9934			
CE ' A, 19					u	DEPENDENT VARIABLE	.0800				1.7109	.5750	1.976.1			
TABULATED SOURCE			. N. 1 00000 .		.000 MACH	DEPENDEN	.0600				1.6595	.5500	1.9482 1.9262 1.9862	!		
TABULAT LARCY		Ö	999		H		00+0.				1.6538	. 5250)		
		# Q 22. *			ALPHA (1)		.0200				1.5386	.5000	1.4801 1.4304 1.809 1.809 1.9247	1		
		REFERENCE DATA				IAL TANK	.0100				14, 3855	. 4750		. 0.0	.9738	1.7645
97		REFER	474.8030 936.7000	. 0059	= 10.050	1)EXTERN	. 0000				15 9770 14 3855	0054.		. 0000	.9345	1.7809
CATE 16 MAR		i	H H H	SCALE =	PN/L (1)	SECTION (1) EXTERNAL TANK	x/L	1H9 000.	45 003 67.500 90.000	112.500	157.500	x/L	11 000 000 000 000 000 000 000 000 000	180.000	X/L	PH1 180.000

PAGE 217	(QPRW01) (16 SEP 75)	PARAMETRIC DATA	MACH - 8.000 ALPHA000 BETA000 RN/L100	10-67+91. = 0H 7.385.1 = 01	•		
TABULATED SOURCE DATA, 1417, LARC VDHT 646-647	LARCVOHT646 1H17 01+T8 ORBITER WING		.0000 IN. .0000 IN.	.000 MACH = 7.3731 PO = 23.805	DEPENDENT VARIABLE QDOT		
DATE 16 MAR 76		REFERENCE DATA	SREF = 2690.0000 SO.FT. XMRP = LREF = 474.8000 IN. YMRP = BREF = 936.7000 IN. ZMRP = SCALE = .0059	PN/L (1) = .100 ALPHA (1) =	SECTION (110RBITER WING	2Y/8 .4000 .6000 .8000	x/C .175 .200 .200 .200 .200 .200 .200 .1137 .300 .1426 .2791 .300 .1699 .3398 .5350 .500 .1513 .2872 .4752 .600 .1133 .2872 .4752 .600 .1134 .269 .4004 .700 .1153 .2872 .4752 .870 .1153 .870

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PAGE 218	EP 75		•	4			
PA	16 SI		H H				
	(QPRW02) (16 SEP 75	DATA	ALPHA RN/L	£			
	(QPRW0)	PARAMETRIC DATA	8.000 .000	= 1270.3			
		PAR/	.				
			MACH BETA	10			
TABULATED SOURCE DATA. 1H17. LARC VDHT 646-647				= 117.18			
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Ä	LARCVOHT646 1H17 01+T8 ORBITER WING			000 MACH	DEPENDENT VARIABLE GDOT		
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			# # W	2		o	できごまま
			XMRP YMRP ZMRP	ALPHA (1)		.8000	. 1995 1374 10:57 1874 1874
		DATA		ALP.	G		
		REFERENCE DATA	2690.0000 SQ.FT. 474.8000 [N. 936.7000 [N.	_	Ž	.6000	.5182 .5182 .5182 .5045 .5045 .3710 .3238
		EREN	8550 8550	. 500	TER		
ဖွ		REF	0000		ORBI	4000	.1056 .3135 .3501 .3501 .25889 .27889 .1794
AR 7			2690 474 936		2	•	
DATE 15 MAR 75			N # N 11	-	SECTION (1) ORBITER WING		271.28.29.29.29.29.29.29.29.29.29.29.29.29.29.
ш Н			SREF LREF BREF SCALE	RN/L	SECT.	21/8	*
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PAGE 219 (QPRW03) (16 SEP 75)	PARAMETRIC DATA	.H # 8.000 ALPHA # .000	10-583-01 HO67283-01			
TABULATED SOURCE DATA, 1H17, LARC VDHT 646-647 LARCVDHT646 1H17 01+T8 ORBITER WING		.0000 in. MACH .0000 in. BETA .0000 in.	.000 MACH = 7.9115 PO = 497.82	DEPENDENT VARIABLE GOOT		
DATE 16 MAR 76 TAI	REFERENCE DATA	SREF = 2690.0000 SQ.FT. XMRP = LREF = 474.8000 IN. YMRP = BREF = 936.7000 IN. ZMRP = SCALE = .0059	RN/L (1) = 2.000 ALPHA (1) =	SECTION (1) ORBITER MING	0008. 6003. 0004. 8/YS	x/C 175 .2700 200 .2390 .2053 .255 .1049 .5236 .300 .8950 1.3211 .3417 .400 .9355 1.6391 2.6088 .500 .7440 1.1226 1.9424 .700 .6063 .9802 .800 .4346 .7716 .875 .5545

PAGE 220	(QPRW04) (16 SEP 75)	PARAMETRIC DATA	CH * 8.000 ALPHA * .000	10-£0305. = 00 HO = .80603-01	,		
TABULATED SOURCE DATA, 1H17, LARC VDHT 646-647	LARCVDHTG46 1417 01+T8 ORBITER WING		.0000 IN. .0003 IN. .0000 IN.	.000 MACH = 7.9609 PC = 735.96	DEPENDENT VARIABLE GDOT		
DATE 18 MAR 76		REFERENCE DATA	SREF = 2690.0000 SQ.FT. XMRP = LREF = 474.8000 IN. YMRP = 876.7000 IN. ZMRP = SCALE = .0059	RN/L (1) = 5.000 ALPHA (1) =	SECTION (1) ORBITER WING	2Y/8 . 4000 . 6000 . 8000	x/C 175 280 280 280 280 280 280 280 280

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LARC VOHT 646-647
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TABULATED SOURCE DATA,
16 MAR 75

PAGE 221	PARAMETRIC DATA	MACH = 8.000 ALPHA = .000 BETA = .000 RN/L = 10.000	10211 × 01 0 0111 × 01			
R 76 TABULATED SOURCE DATA, 1H17, LARC VDHT 646-647 LARCVDHT646 1H17 01+T8 ORBITER WING	REFERENCE DATA	2690.0000 50.FT. XMRP = .0000 IN. 474.8000 IN. YMRP = .0000 IN. 936.7000 IN. ZMRP = .0000 IN.	= :3.500 ALPHA (1) = .000 MACH = 8.1061 PO = 2535.6	↓	.400d .600d . 8000	1.0304 6508 3.3329 7.25565 7.35265 7.3533 7.3533 7.100
CATE 16 MAR 76		00 00 00 00 00 00 00 00 00 00 00 00 00	6.17	SECTION (27/8	7. 7. 7. 8. 8. 8. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9. 9.

DATE 16 MAR 75	37			TAE	SULATED	SOURCE	DATA.	ABULATED SOURCE DATA, 1H17, LARC VDHT 646-647	LARC VD	HT 646	2-647					PAG	PAGE 222	
				_	ARCVDH.	1646 IH	17 01+	LARCVOHT646 1H17 01+T8 ORBITER WING	R WING					(QPR	(QPRW06)	(16 SEP 75	, 75	
	REFERE	REFERENCE DATA	¥										u.	PARAMETRIC DATA	C DATA			
SREF = 2691 LREF = 477 BREF = 936 SCALE =	2690.0000 S 474.8000 11 936.7000 11	SO.FT.	XMRP YMRP ZMRP		00000 00000 00000	<u>z z z</u>						MACH BETA		8.000 .000	ALPHA RN/L	zi w	-5.000	
RN/L (1) =	100		ALPHA (1)	M	.000	.000 MACH		= 7.3731	90	ıı.	23.805	0	M	1230.1	오	H	. 19473-01	0
SECTION (1) ORBITER WING	ORBITER	E ING			DEPE	NDENT	VARIAB	DEPENDENT VARIABLE QUOT										
27/8	£000	.6000	.8000															
2,x 2,1,1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,	0.162 1.157 1.157 1.159 1.157	.0564 .0512 .2320 .3320 .2333 .1950 .1580	0.000.0000.0000.0000.0000.0000.0000.0000															

PAGE 223	(CPRM07) (16 SEP 75)	PARAMETRIC DATA	MACH = 8.000 ALPHA = -5.000 BETA = .000 RN/L = 5.000	10-26118. • 0H 0.396.1 • 01														
TABULATED SOURCE DATA, 1H17, LARC VOHT 646-647	LARCVOHT646 1417 01+T8 OPBITER WING			.000 HACH = 7.9615 PO = 737.51	DEPENDENT VARIABLE GOOT													
DATE 16 MAR 76		REFERENCE DATA	SAEF = 2690.0000 SO FT. XMRP = LAEF = 474.8000 [N. YMRP = BREF = 936.7000 [N. ZMRP = SCALE = .0059	PN/L (1) = 5.000 ALPHA (1) =	SECTION (1) ORBITER WING	27.5 G000. 6004. 8000	Y/C	. 175 . 200 . 200	.3425	. 1040	1.0408 1.7137	1.0793 2.0153	1.02:6	.834 1.3554	.6353 1.	C181	•	

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PAGE 22 PAGE 32 PAGE 33 PAGE		PAGE 224	75)		0000.	.30653-01													
S MAR 76 TABULATED SOUPCE DATA, IH17, LARC VOHT 646-647 CARRUDB) CARRUDB CAR		PAGE	6 SEP			•													
### 76 ** REFERENCE DATA** ** A690.0000 \$0.FT. XMRP ** .0000 IN.** ** 474.8000 IN.** ** 956.0000 \$0.FT. XMRP ** .0000 IN.** ** 956.0000 IN.** ** 956.0000 IN.** ** 956.0000 IN.** ** 956.0000 IN.*				DATA	ALPHA RN/L	웃													
### 76 ** REFERENCE DATA** ** A690.0000 \$0.FT. XMRP ** .0000 IN.** ** 474.8000 IN.** ** 956.0000 \$0.FT. XMRP ** .0000 IN.** ** 956.0000 IN.** ** 956.0000 IN.** ** 956.0000 IN.** ** 956.0000 IN.*			COPRIMO	AMETRIC		1231.5													
15 MAR 76				PAR															
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S MAR 76					MACH	70													
S MAR 76		6-647				29.775													
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### 76 FEFERICE DATA FEFERICE DESCRIPTION FEFERICE DATA		SOUPCE DA	646 IH17	,	<u>z z z</u>	MAGE	NOENT VAR												
### 76 FEFERICE DATA FEFERICE DESCRIPTION FEFERICE DATA	i i	WOLATED	LARCVDHT		00000	. 200	DCPE												
# 2599.0000 SQ.FT. # 774.8000 1N. 936.7000 1N. 10N (1.) PR.TER HINS 175 (1.) PR.TER HI	,			₹.	X X X X X X X X X X X X X X X X X X X	PHA (1)		.8000				. 1363	1087	.5708	. 4962	41C4.			
8				ENCE DAT	0 <u>x x</u>		SNIM &	.6000		.0802	1		. 2956	.3737	3045.	.2919	.2373	.2048	ار د د د د د د د د د د د د د د د د د د د
SECTION: (1787 - 1787 -	ņ	o `		REFER	90.0000 74.8000 36.7000		1.0RB17E	00 0 4.			.0301	0150	. 1556	.161:	1.7.	.1655	00 J	SSSS.	
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PAGE 225 (QPRW09) (16 SEP 75 PARAMETRIC DATA HACH = 8.000 ALPHA = .000 BETA = .000 RN/L = .500 108.93 TO = 1269.4 HO = .309	
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*BULATED SOURCE D'17, 1H17, LARC VDHT 646-647 LARCVDHT646 1H17 01 T8+X23 ORBITER WING .0000 1N0000 1N0000 1N000 MACH = 7.6928 PO = 108.9	
ATED SOURCE 0 CVDHT646 1H17 0000 1N. 0000 1N. 0000 MACH DEPENDENT VA	
ARCVDHT646 - 0000 IN 0000 IN 0000 IN 0000 IN 0000 IN.	
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NCE DA N. N.	
REFERENCE DATA 0000 SQ.FT. 8000 IN. 0059 .500 ALP .500 ALP .500 .6000 .001. 340 .001340 .001340 .001340 .001	ស៊
## 76 #EFER 2690.0000 936.7000 936.7000 936.7000 1.046011E 2678 2678 2678 3278 3278 3278 3278 3278 3278 3278	. 1525
PEFERENCE D SPEF = 2690.0000 SG.FT. LPEF = 474 8030 IN. SCALE = 474 803	2

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#AR 76 LARCVDHTGVE DATA, 1H17, LARC VDHT GVG-GV7 REFERENCE DATA REFERENCE DATA REFERENCE DATA REFERENCE DATA RACKPHIO (16 SEP PARAMETRIC DATA PARAMETRI	5753 1.3573 6482 1.0457 6482 1.0418 1.158 .923 4.158 6933	PATE 15 HAR 15 H	o o o o o o o o o o o o o o o o o o o	75.005 A 1.00 A	XMRP YMRP ZMRP ZMRP ZMRP 2M8P . 8000 . 8000 1 6342 1 6342	•	ABULATE . 000 . 000 . 000 . 000	20 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ACE DA	TA. 01+TE 1ABLE	1H17.	BITER PO	В	46-647	MAC 88.11	• •	PARAP B B E	0000 0000 39.3	DATA BN/L HO	PAG	E 226 1 75 1 2.000 2.000 66755-01
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DATE 16 MAR 76	TABULATED SOURCE DATA, 1417, LARC VDHT 646-647			à	PAGE 227
	LARCVDHT646 1H17 01+TB+X23 CRBITER WING		HRPG)	(QPRW11) (16 SEP 75	15 75 1
PEFERENCE DATA			PARAMETRIC DATA	DATA	
SPEF = 2690 COO SO.FT. XMPP = LPEF = 474 BOO IN. YMPP = BREF = 936 7000 IN. ZMRP = SCALE = 0.0059	.0000	KACH BETA	000. 000.	ALPHA = RN/L =	.000
PN/L (1) = 5.000 ALPHA (1) =	000 MACH = 7.9591 PO = 723.36	õ	= 1376.4	¥	. 79966-01
SECTION (1) OPBITER WING	DEPENDENT VARIABLE ODOT				
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7.0 200 200 200 200 200 200 200 319; 201 319; 201 319;					

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) a -		# # # # # # # # # # # # # # # # # # #	ALPHA (1) =	•	
พอกระบบการที่	DATE :6 MAR 76	PEFERENCE D	269000000000000000000000000000000000000	(1) = (C.000	0009 300 1	

PAGE 229	(QPRW25) (16 SEP 75)	PARAMETRIC DATA	8.000 ALPHA = .000 .000 RN/L = .100	= 1251.6 HO = .19145-01										
			MACH BETA	2										
ABULATED SOURCE DATA, IH17, LARC VDH7 646-647	LARCVDHT646 1H17 01+X23 OPBITER WING		.0000 IN. .0000 IN. .0000 IN.	.850 MACH = 7.4713 PO = 32,700	DEPENDENT VARIABLE QDOT									
_			XMRP # ZMRP # ZMRP #	ALPHA (1) =		. 8000		.1639	.0950	1001	. 3897			
		REFERENCE DATA			E I NO	. 6000	.1186		.3151	3405	4462.	.2520	.2148	. בעית
75		REFERE	2590.0000 50.FT. 474.8000 IN. 936.7000 IN.	. 160	1 JORBI TER	4,000		.0699. 40070.	. 21.83 7.84	.24:7	. 2263	. 1847	. 1555	
DATE 15 MAR 75			SREF = 259 LREF = 47 BREF = 93 SCALE =	RN/L (1) =	SECTION (1) ORBITER WING	21/8	X/C .175 .200	. 2005 . 2000	00M.	. 500	909.	.700	.800	0/0

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547 PAGE 230 (GPRW26) (16 SEP 75)	PARAMETRIC DATA MACH = 8.000 ALPHA = .000 BETA = .000 RN/L = .500	110.64 TO * 1280.2 HO * .31029-01	
TABULATED SOURCE DATA, IHI7, LARC VDHT 646-647 LARCVDHT646 IHI7 01+X23 ORBITER WING	.0000 IN. .0000 IN.	.85C MACH = 7.6953 PO = 110 DEPENDENT VARIABLE QDOT	
DATE TO MAR 75 REFERENCE DATA	SREF = 2690.0000 50.FT. XMRP = LREF = 474.8000 IN. YMRP = SCALE = 936.7000 IN. ZMRP = COSS	RN/L (1) = .500 ALPHA (1) = SECTION (1) ORBITER WING 2Y/B .4000 .6000 .8000	

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PAGE 231	(QPRW27) (16 SEP 75)		.0000	= .66564-01			
) (16	DATA	ALPHA .	유			
	(OPRW27	PARAMETRIC DATA	8.000 .000	1368.1			
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			MACH BETA	5			
6-647				490.20			
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LARC	٦ ا			9			
TABULATED SOURCE DATA, 1H17, LARC VOHT 646-647	LARCVDHT646 1417 01+X23 ORBITER WING			3095	DEPENDENT VARIABLE QDOT		
	1+X23			= 7.9095	BLE		
DAT,	17 0				/AR1/		
URCE	9 H			MACH	ENT		
0 20	H164		.0000 .0000 .N.	. 855	iCN3d		
LATE	RCVD		000.	.85	130		
TABU	LA						
			4 H H	=			
			ARRY GRAP GRAP	ALPHA (1)		8000	.6167 .4005 .3542 .0648 .7531
		DATA		ALP	()	_	₩ —
		Ä	8 Z Z Z	6 3	2	.6500	
		PEFERENCE DATA		2.500	 	0	
76		J.	2690.0000 474.8000 936.7000		CRB	.4030	1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03
Ω Σ			269 437 337	2			PM 6-4
DATE 16 MAP 76			# # H H H	<u>۔</u>	SECTION C LIGRBITER WING	-	
DATE			SREF LREF BREF SOALI	2	SEC	2Y/B	×

PAGE 232	(QPRW28) (16 SEP 75)	PARAMETRIC DATA	# 8.000 ALPHA # .000 # .000 RN/L # 5.000	* 1388.6 HO - * .00567-01			
			HACH	5			
LARC VDHT 646-647	ER WING		u	PO = 719.47			
TABULATED SOURCE DATA, IHI7, LARC VOHT 646-647	LARCVDHT646 1H17 01+X23 ORBITER WING		.0000 IN. .0000 IN.	.850 MACH * 7.9584	DEPENDENT VARIABLE COOT		
DATE 16 MAR 76 T.		REFERENCE DATA	= 2690.0000 SQ.FT. XMRP = 474.8000 IN. YMRP = 936.7000 IN. ZMRP = .0059	RN/L (1) = 5.000 ALPHA (1) =	SECTION (1)0081TER WING	0008. 0009. 0004.	.5369 .200 .235 .250 .2335 .300 .3370 .9056 .5518 .400 1.3370 .9056 .5518 .400 1.3479 1.8682 2.6452 .500 1.3479 1.8682 2.6452 .500 1.3479 1.8682 2.6452 .500 1.3479 1.8682 2.6452 .900 .7182 1.1808 .875 .9795
DATE			SREF LREF BREF SCALE	RN/L	SECT	24/8	×

	(QPRW29) (16 SEP 75)	PARAMETRIC DATA	MACH = 8.000 ALPHA = .000 BETA = .000 RN/L = 10.000	2520.7 TO * 1454.3 HO * .14363			
TABULATED SOURCE DATA, 1H17, LARC VDHT 646-647	LARCVDHT646 1H17 01+X23 ORBITER WING		.0000 .0000 IN.	.850 MACH * 8.1054 PO *	DEPENDENT VARIABLE QDOT		
DATE 16 MAR 76		REFERENCE DATA	SREF = 2690.0000 SQ.FT. XMRP = LREF = 474.8000 IN. YMRP = BREF = 936.7000 IN. ZMRP = SCALE = .0059	P%/L (1) = 10.000 ALPHA (1) =	SECTION (1) ORBITER WING	27/8 . 4000 . 6000 . 8000	7.C 175 1.75 1.4465 .200 .8455 .8590 .220 .8455 .2859 2.4146 .200 .7339 4.6047 1.5546 .400 .2.9337 8.2668 6.5391 .500 .2.9337 8.2668 6.5391 .500 .2.537 4.5945 4.8108 .700 .2.2597 4.3425 .800 1.8437 3.7757

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SECTION (1) ORBITER WING

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= 2690.0000 SC.FT. XMRP = 474.8000 IN. YMRP = 936.7000 IN. ZMRP = 00059

REFERENCE DATA

DATE 15 MAR 75

DEPENDENT VARIABLE ODOT

.8000

.4000 .6000

24/8

.3520

.3854 .3168 .8861 .8174 .7323

0.000 000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.

.5698 .5773 .6126 .5925 .5343 .4771

.3316

-5.000 .100

ALPHA RN/L

8.000 .000

MACH

(OPRW30) (16 SEP 75)

PARAMETRIC DATA

PAGE 234

TABULATED SOURCE DATA, IHI7, LARC VOHT 646-647

LARCVOHT646 1H17 01 ORBITER WING

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TABULATED SOURCE DATA, 1417, LARC VOHT 646-647 LARCVOHT646 1417 01 ORBITER WING	PARAMETRIC DATA	MACH = 8.000 ALPHA = -5.000 BETA * .000 RN/L = 5.000	# 735.33 TO # 1391.4 HO # .80672-01			
. LARC			8	-		
A. IH17 1 ORBITE			7.9611	ABLE abo		
URCE DAT			MACH	DEPENDENT VARIABLE GOOT		
BULATED SOURCE DATA, 1417, LARC LARCVOHTG*6 1417 01 ORBITER WING			.850	DEPEND		
TABI L					9	တ္တန္တ္လ
	ATA	XMRP YMRP ZMRP	ALPHA (1)		.8000	. 4825 . 3519 2 . 4324 5 . 1449 1 . 7702
	REFERENCE DATA	80.7 7.3.5		R WING	.6000	
76	REFER	2690.0000 SQ.FT. 474.8000 IN. 936.7000 IN.	5.000	10891 IE	4000	3463 3463 6612 6612 6612 673 673 673 674 674 674 674 674 674 674 674 674 674
DATE 16 MAR 76		SREF = 269 LREF = 47 BREF = 93 SCALE =	RN/L (1) =	SECTION (110RBITER WING	27/8	2, 2, 2,000,000,000,000,000,000,000,000,

DATE 16 MAR 76	TABULATED SOUPCE DATA, IHI7, LARC VDHI 646-647	PAGE 236
	LARCVOHT645 1H17 01 ORBITER WING	(QPRW32) (16 SEP 75)
REFERENCE DATA		PARAMETRIC CATA
SAEF = 2690.0000 SQ.FT, XMPD = LAEF = 474.8000 IN. YWAD = B9EF = 936.7000 IN. ZWAD = C059	.0000 IN. .00000 IN.	MACH = 8.000 ALPHA = .000 BETA = .000 RN/L = .100
Rt. (1) = .100 ALPHA (1)	= 850 MACH = 7.4713 PO = 32.700	TO = 1211.4 HO = .19041-01
SECTION (1) OPBITER WING	DEPENDENT VARIABLE QDOT	
87YS . 6000 . 6000 .		
×/C .175		
. 2585 . 3487		
1889 + 4860 ·		
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1534 . 2831		
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PAGE 237	(OPRW33) (16 SEP 75)	PARAMETRIC DATA	B.000 ALPHA000 .000 RN/L500	# 1233.0 HO # .31093-01													
			MACH BETA	10													
TABULATED SOURCE DATA, IHI7, LARC VOHT 646-647	LARCVOHT646 1417 01 ORBITER WING		. N1 0000	.850 MACH = 7.6961 PO = 111.17	DEPENDENT VARIABLE GOOT												
F		⋖	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	ALPHA (1) =		.8000				.2342	172:	.8349	.7255	.6146			
		REFERENCE DATA	S0.FT.		E ING	.6000		.1773	2		.5058	.7045	. 5220	.4796	4227	3578	
76		REFERE	2690.0000 S 474.8000 1 936.7000 1	.500	1)CRB:TER	0004.			.1008	.0532	3985	. 4250	8601.	3453	. 2971	පුපුපු දු	, 00 t
DATE 16 MAR			SPEF # 28	(1) 7,48	SECTION (1) ORBITER	e e	C.X	10 CC	225	្ត ស្ន	. 330	00±.	. 500	. 630	007.	800 800) () ()

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538	، 75 ،		.000	.64181-01														
PAGE	S SE			•														
	(QPRM34) (16 SEP 75	DATA	ALPHA RN/L	오														
	(OPRW34	PARAMETRIC DATA	8.000 .000	1348.7														
		PAR																
			• •	0														
			MACH BETA	10														
646-647				± 491.13														
VDHH				-														
LARC	SN:			9														
TABULATED SOURCE DATA, 1H17, LARC VDHT 646-647	LARCVDHT646 1H17 OI ORBITER WING			8 506.7 =	DEPENDENT VARIABLE QDOT													
SOURCE DA	546 1H17		<u>zzż</u>	MACH	NDENT VAF													
ABULATED S	LARCVDHT		0000 0000 0000	. BSO	Энзс													
b-		. 4	H H H	ALPHA (1) =		.8000					.6190	1414.	2.3552	2.0724	1.8196			
		REFERENCE DATA	82.5. F		A ING	.6000		.4160	. 2678			1.4853	2 .0235	1.4931	1.3434	0:61.1	.9556	8032
3 76		REFER	2690.0000 474.8000 935.7000	= 2.003	1) ORBITE	0004				869:	.:615				5335	. 728a	52:3	
DATE 16 MAR 76			80 30 30 30 30 30 30 30 30 30 30 30 30 30	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	SECTION (1) ORBITER WING	2^/8	() `¥	37.1.	C08.	. 225.	252	002	:: •	() ()	603	C	(I)	e ir'

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PAGE 239	(QPRW35) (16 SEP 75)	PARAMETRIC DATA	8.000 ALPHA ≈ .000 .000 RN/L ≈ 5.000	= 1377.1 HO = .80824-01			
		PARA		•			
			MACH	0			
ABULATED SOURCE DATA, 1H17, LARC VDHT 646-647				= 741.56			
7. LARC	ER WING			P0	<u>-</u>		
DATA, IHI	LARCVDHT646 IH17 OI ORBITER MING			4 = 7.9622	DEPENDENT VARIABLE COCT		
SOURC!	1646 1		<u>zzz</u>	MACH	TNBCNB		
BULATED	LARCVDH		77Z 77Z 0000 0000 0000	.850	OEP		
4.		4	# # # @ c a a c a a	ALPHA (!) =		. 8000	
		PEFERENCE DATA	50.FT.	000	SNI M	.6009	2002 2002 2003 2003 2003 2003 2003 2003
7 PA 75		PEFER	2690.0000 474.8000 936.7000) # U	(1) CPB TER WING	0 0 3	
3A'E 16 K			SAEF LAEF BAEF SCALE E E E		SECTION (2×.B	ភ កំណុំកំណុំ កំណុំ កំណុំ កំណុំ កំណុំ សូខ្យាំ សូខ ខេត្ត ខេត្ត សូខ សូខ ខេត្ត ខេត្ត ខេត្ត ខេត្ត ខេត្ត ខេត្ត ខេត្ត ខេត្ត ខេត្ត ខេត្ត ខេត្ត ខេត្ត ខេត្ត

DATE . 5 MAR 76		TABULATED SOURCE DATA, 1H17, LARC VOHT 646-647	PAGE	35 0+5
		LARCVOHTE45 1HIT OI ORBITER WING	* ** *** (\$\$M�)	, 14 14 15
REFERE.	REFERENCE DATA			- 0.
SPEF = 2690.0000 SC LPEF = 474.8000 in BPEF = 936.7000 in S.ALE = 936.7000 in	SQ.FT. XMPP YMPP IN. ZMPP N. ZMP IN		MACH = 8.000 ALPHA = 8ETA = .000 RN/L =	000.01
FW/L (1) = 10 000	C ALPHA (1) :	* .850 MACH * 8,1059 PO * 2532.5	TO * 1450.6 HO	. 14385
24.B		DEFENDENT VARIABLE ODOT		
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